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ABSTRACT

The publication gives a comprehensive overview of work done across all parts of the National Center for Education Statistics (NCES). Each issue contains short publications, summaries, and descriptions that cover all NCES publications, data products, and funding opportunities developed over a 3-month period. Each issue also contains a message from the NCES on a timely topic and a featured topic with invited commentary. This issue's featured topic is "NAEP 2000 Mathematics Assessment," and contains the first two articles: (1) "The Nation's Report Card: Mathematics 2000" (James S. Braswell, Anthony D. Lutkus, Wendy S. Grigg, Shari L. Santapau, Brenda Tay-Lim, and Matthew Johnson); and (2) "Invited Commentary: Policy Implications of Findings from 'The Nation's Report Card: Mathematics 2000;" (Debra Paulson and Manuel Hornedo). The second section, "Elementary and Secondary Education," includes: (3) "The Next Generation of Citizens: NAEP Civics Assessments: 1988 and 1998" (Andrew R. Weiss, Anthony D. Lutkus, Wendy S. Grigg, and Richard G. Niemi); (4) "Homeschooling in the United States: 1999" (Stacey Bielick, Kathryn Chandler, and Stephen P. Broughman); (5) "Teacher Preparation and Professional Development: 2000" (Basmat Parsad, Laurie Lewis, and Elizabeth Farris); (6) "Private School Universe Survey: 1999-2000" (Stephen P. Broughman and Lenore A. Colaciello); (7) "Overview of Public Elementary and Secondary Schools and Districts: School Year 1999-2000" (Lee M. Hoffman); and (8) "Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1998-99" (Frank Johnson). The third section, "Postsecondary Education," contains: (9) "High School Academic Curriculum and the Persistence Path through College: Persistence and Transfer Behavior of Undergraduates 3 Years after Entering 4-Year Institutions" (Laura Horn and Lawrence K. Kojaku); (10) "Bridging the Gap: Academic Preparation and Postsecondary Success of First-Generation Students" (Edward C. Warburton, Rosio Bugarin, and Anne-Marie Nunez); (11) "Middle Income Undergraduates: Where They Enroll and How They Pay for Their Education" (Jennifer B. Presley

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and Suzanne B. Clery); (12) "National Postsecondary Student Aid Study: Student Financial Aid Estimates for 1999-2000" (Andrew G. Malizio); (13) "Competing Choices: Men's and Women's Paths after Earning a Bachelor's Degree" (Michael S. Clune, Anne-Marie Nunez, and Susan P. Choy); and (14) "Postsecondary Institutions in the United States: 1993-94 and 1998-99" (Patricia Q. Brown). The next section, "Libraries," contains: (15) "Public Libraries in the United States: Fiscal Year 1998" (Adrienne Chute and P. Elaine Kroe); and (16) "Academic Libraries: 1998" (Margaret W. Cahalan and Natalie M. Justh). The next section, "Crosscutting Statistics," includes: (17) "Educational Achievement and Black-White Inequality" (Jonathan Jacobson, Cara Olsen, Jennifer King Rice, Stephen Sweetland, and John Ralph); and (18) "Features of Occupational Programs at the Secondary and Postsecondary Education Levels" (Richard P. Phelps, Basmat Parsad, Elizabeth Farris, and Lisa Hudson). The final section, "Methodology," contains: (19) "Community College Transfer Rates to 4-Year Institutions Using Alternative Definitions of Transfer" (Ellen M. Bradburn and David G. Hurst); and (20) "A Classification System for 2-Year Postsecondary Institutions" (Ronald A. Phipps, Jessica M. Shedd, and Jamie P. Merisotis). (Contains 37 figures and 35 tables.) (SLD)

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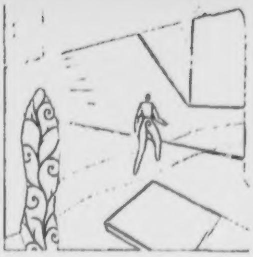

National Center for Education Statistics

The National Center for Education Statistics (NCES) fulfills a congressional mandate to collect and report "statistics and information showing the condition and progress of education in the United States and other nations in order to promote and accelerate the improvement of American education."

EDUCATION STATISTICS QUARTERLY

Purpose and goals

At NCES, we are convinced that good data lead to good decisions about education. The *Education Statistics Quarterly* is part of an overall effort to make reliable data more accessible. Goals include providing a quick way to

- identify information of interest;
- review key facts, figures, and summary information; and
- obtain references to detailed data and analyses.

Content

The *Quarterly* gives a comprehensive overview of work done across all parts of NCES. Each issue includes short publications, summaries, and descriptions that cover all NCES publications and data products released during a 3-month period. To further stimulate ideas and discussion, each issue also incorporates

- a message from NCES on an important and timely subject in education statistics; and
- a featured topic of enduring importance with invited commentary.

A complete annual index of NCES publications appears in the Winter issue (published each January). Publications in the *Quarterly* have been technically reviewed for content and statistical accuracy.

General note about the data and interpretations

Many NCES publications present data that are based on representative samples and thus are subject to sampling variability. In these cases, tests for statistical significance take both the study design and the number of comparisons into account. NCES publications only discuss differences that are significant at the 95 percent confidence level or higher. Because of variations in study design, differences of roughly the same magnitude can be statistically significant in some cases but not in others. In addition, results from surveys are subject to nonsampling errors. In the design, conduct, and data processing of NCES surveys, efforts are made to minimize the effects of nonsampling errors, such as item nonresponse, measurement error, data processing error, and other systematic error.

For complete technical details about data and methodology, including sample sizes, response rates, and other indicators of survey quality, we encourage readers to examine the detailed reports referenced in each article.

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NOTE FROM NCES

Peggy G. Carr, Associate Commissioner, Assessment Division

A Decade of Student Achievement: State and National Profiles of Performance

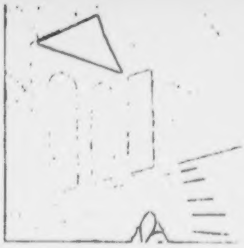
For more than 30 years, the National Assessment of Educational Progress (NAEP) has documented the achievement of America's students. This year, NAEP will provide a comprehensive profile of what students who were assessed in 2000 know and can do in the key subjects of reading, mathematics, and science. National reading results at grade 4 were published in April. National science results at grades 4, 8, and 12, as well as state-level science results at grades 4 and 8, will be published in November. Featured in this issue of the *Education Statistics Quarterly* are mathematics results that were published in August (national results at grades 4, 8, and 12 and state-level results at grades 4 and 8). Reports of the 2000 results include comparisons with results from assessments conducted during the 1990s.

The release of the 2000 results highlights two noteworthy points. First, the 2000 results mark the first decade of NAEP's unique contribution to the body of information on student academic performance at the state level. This is an accomplishment that many thought unachievable when 1988 legislation first authorized state NAEP on a trial basis. (The same legislation established the National Assessment Governing Board—NAGB—to set policy for both state and national NAEP.) The second point is a more substantive one, which has emerged from the results themselves. Over the past decade, differential progress has been made by students in the key subjects of reading and mathematics.

State NAEP Proves Its Value

At the end of its first decade, state NAEP—no longer considered a "trial" since 1996—is doing well as the nation's only ongoing independent measure of student achievement at the state level in the key subjects of reading, writing, mathematics, and science. State NAEP is the only assessment that allows states to compare their students' performance to that of students in other states using a common assessment instrument. This capability has made state NAEP a valuable commodity for the state education policy, research, and assessment communities.

- Every state and jurisdiction, with the exception of one, has participated in at least one of the state assessments.
- An average of 40 states and jurisdictions volunteer to participate in each state assessment cycle.
- As many as 15,800 schools and about 400,000 students volunteer to participate in the now typical two-subject, two-grade state assessment program.
- As NAGB has laid new ground for more contemporary content frameworks to guide development of the NAEP assessments, both the state and national assessments have become progressively more challenging in the knowledge, skills, and abilities that they assess as well as in their assessment specifications (e.g., the number of multiple-choice items has been reduced, while the number of constructed-response items has been increased).



NAEP Results Show More Improvement in Mathematics Than in Reading

NAEP national and state-level results show that students across the nation are making marked progress in mathematics but very little progress in reading. In general, national reading scores have remained about the same since 1992 except for a small increase for eighth-graders between 1992 and 1998, when the most recent eighth-grade reading assessment was conducted. Consistent with these national results, the results of state-level reading assessments at grade 4 show that relatively few states had significant score increases or declines between 1992 and 1998. Mathematics results, on the other hand, have shown progress over the past decade for nearly every subgroup of the population and across almost all states and jurisdictions that participated in the assessments. Over the past decade, Whites, Blacks, Hispanics, males, females, and students in the fourth, eighth, and twelfth grades have all shown increases in their mathematics scores. Improvement has also occurred at all percentiles. Thus, although the achievement gap in mathematics between Whites and minorities has not changed over the past decade, students scoring in the two lowest percentiles (the 10th and 25th), in which minorities are disproportionately represented, have shown score increases since 1990 at all three grades. Out of the 36 states and jurisdictions that participated in both 2000 and the first state assessment at grade 4 in 1992, 26 showed increases from 1992. At grade 8, of the 31 states and jurisdictions that participated in both 2000 and the first state assessment in 1990, 27 showed increases over the decade. The achievement level results in reading and mathematics—that is, the percentages of students attaining the *Basic*, *Proficient*, and *Advanced* levels adopted by NAGB—showed similar patterns.

Thus, the data described in this issue of the *Quarterly* are a fitting example of the substantive value of a decade of measuring student achievement. As intended when NAEP was first mandated, the NAEP 2000 Mathematics Assessment provides an excellent basis for dialogue among curriculum experts and practitioners concerning "what students know and can do."

FEATURED TOPIC: NAEP 2000
MATHEMATICS ASSESSMENT

The Nation's Report Card: Mathematics 2000
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Mathematics 2000

The Nation's Report Card: Mathematics 2000

James S. Braswell, Anthony D. Lutkus, Wendy S. Grigg, Shari L. Santapau, Brenda Tay-Lim, and Matthew Johnson

This article was excerpted from* The Nation's Report Card: Mathematics Highlights 2000. *The sample survey data are from the National Assessment of Educational Progress (NAEP) 1990, 1992, 1996, and 2000 Mathematics Assessments.

Introduction

The National Assessment of Educational Progress (NAEP) is the nation's only ongoing representative sample survey of student achievement in core subject areas. Authorized by Congress and administered by the National Center for Education Statistics (NCES) in the U.S. Department of Education, NAEP regularly reports to the public on the educational progress of students in grades 4, 8, and 12.

In 2000, NAEP conducted a national mathematics assessment of fourth-, eighth-, and twelfth-grade students. State-level results were also collected at the fourth and eighth grades within participating states and jurisdictions. This article presents highlights from the NAEP 2000 Mathematics Assessment for the nation and the states. Results in 2000 are compared to results in 1990, 1992, and 1996. Following the performance results are several sample questions and student responses typical of those from recent NAEP mathematics assessments.

Students' performance on the assessment is described in terms of average scores on a 0–500 scale and in terms of the percentages of students attaining three achievement levels: *Basic*, *Proficient*, and *Advanced*. The achievement levels are performance standards adopted by the National Assessment Governing Board (NAGB) as part of its statutory responsibilities. The achievement levels are collective judgments of what students should know and be able to do:

- *Basic* denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade.
- *Proficient* represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
- *Advanced* signifies superior performance.

As provided by law, the Acting Commissioner of Education Statistics, upon review of a congressionally mandated evaluation of NAEP, determined that the achievement levels are to be considered developmental and should be interpreted and used with caution. However, both the Acting Commissioner and NAGB believe these performance standards are useful for understanding trends in student achievement. They have been widely used by national and

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state officials, including the National Education Goals Panel, as a common yardstick of academic performance.

In addition to providing average scores and achievement level performance at the national and state levels, this article includes national results for selected subgroups of students as well as a discussion of home and school contexts for mathematics performance. However, this article does not include results for a second sample of students assessed at both the national and state levels—one in which testing accommodations were provided to students with special needs (i.e., students with disabilities or students with limited English proficiency). For results that include the performance of special-needs students who were assessed with accommodations, see the complete report, *The Nation's Report Card: Mathematics 2000*. Such results were omitted from the highlights presented in this article in order to allow comparisons with past assessment results, which did not include accommodated students.

Major Findings for the Nation

National results are for students attending both public and nonpublic schools.

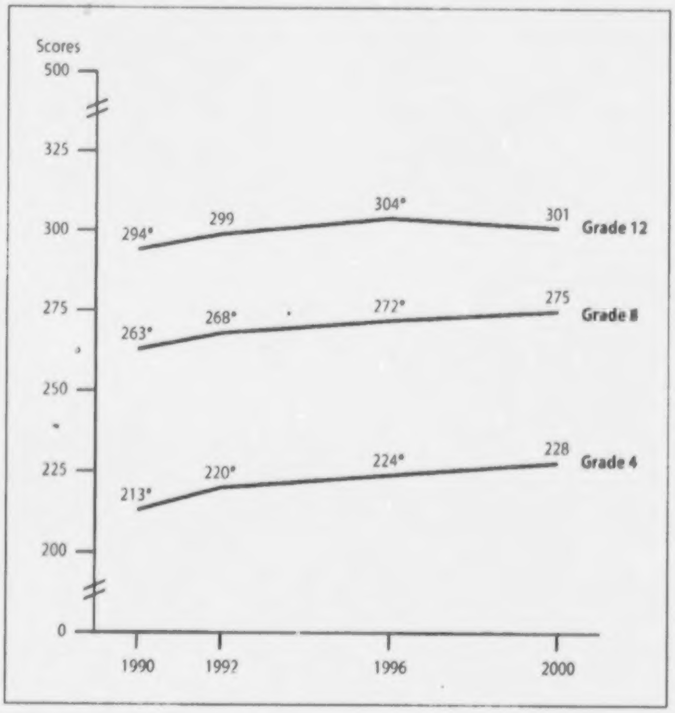
National average scores

Results for the NAEP 2000 Mathematics Assessment show overall gains in fourth-, eighth-, and twelfth-graders' national average scores since 1990, the first year in which the current mathematics assessment was administered (figure A). Fourth- and eighth-graders made steady progress, with higher average scores in 2000 than in 1996, 1992, or 1990. However, this was not the case for twelfth-graders. Although twelfth-graders' average score was higher in 2000 than in 1990, it was lower in 2000 than in 1996.

National achievement level results

The percentages of fourth- and eighth-graders at or above *Basic* and at or above *Proficient* increased across the decade, reaching their highest levels in both grades in 2000 (figure B).

Figure A.—Average mathematics scores, grades 4, 8, and 12: 1990–2000



*Significantly different from 2000.

NOTE: The average scores are based on the NAEP mathematics scale, which ranges from 0 to 500.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, and 2000 Mathematics Assessments. (Previously published on p. 1 of *The Nation's Report Card: Mathematics Highlights 2000*.)

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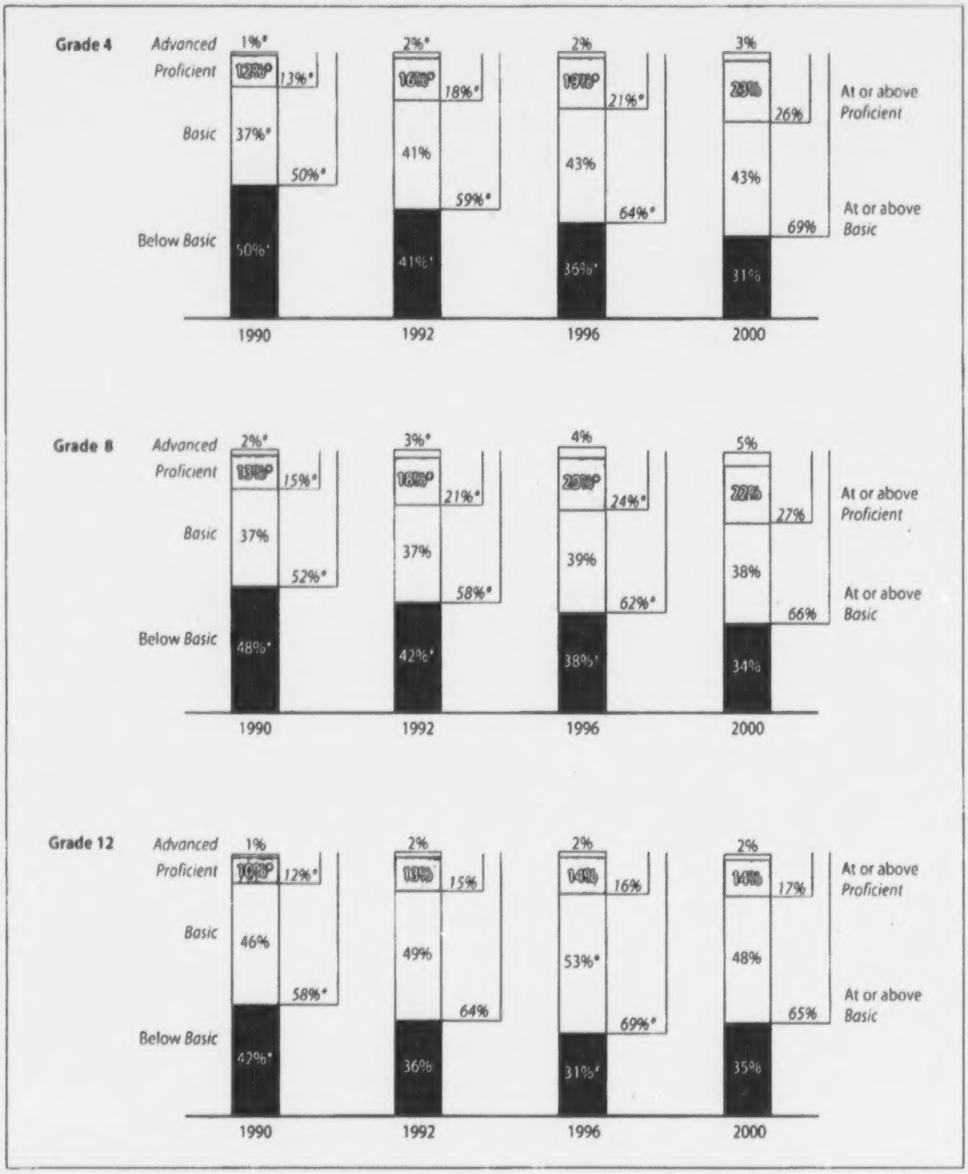
Figure B.—Percentage of students within and at or above the mathematics achievement levels, grades 4, 8, and 12: 1990–2000



*Significantly different from 2000.

NOTE: Percentages within each mathematics achievement level range may not add to 100, or to the exact percentages at or above achievement levels, because of rounding. *Basic* denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade. *Proficient* represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter. *Advanced* signifies superior performance.

HOW TO READ THIS FIGURE:

- The italicized percentages to the right of the shaded bars represent the percentages of students at or above *Basic* and *Proficient*.
- The percentages in the shaded bars represent the percentages of students within each achievement level.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, and 2000 Mathematics Assessments. (Previously published on p. 2 of *The Nation's Report Card: Mathematics Highlights 2000*.)

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At grade 12, the results are mixed. From 1996 to 2000, there was a decrease in the percentage at or above *Basic*. However, the percentage of twelfth-graders at or above both *Basic* and *Proficient* was higher in 2000 than in 1990.

National average scores at different percentiles

The gains in average mathematics scores at all three grades since 1990 are reflected in students' performance across the score distribution. Lower-, middle-, and higher-performing students had higher scores in 2000 than in 1990 (figure C). This finding is the result of analyzing scores at percentiles—or points across the score distribution—on the NAEP mathematics scale.

The score increases seen since 1990 for fourth-, eighth-, and twelfth-graders were evident across the score distribution (at the 10th, 25th, 50th, 75th, and 90th percentiles). However, the decline at grade 12 since 1996 occurred at the lower and middle points of the distribution (at the 10th, 25th, and 50th percentiles).

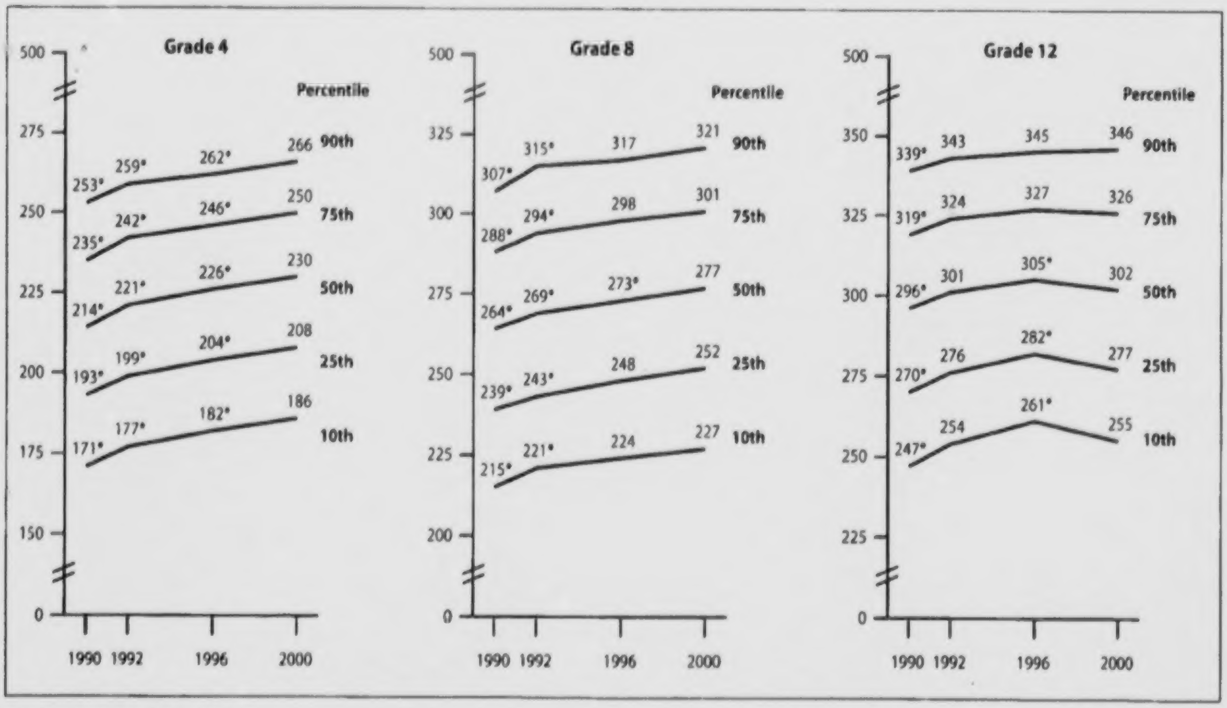
Major Findings for the States and Other Jurisdictions

In addition to national results on students' mathematics performance, the 2000 assessment collected performance data for fourth- and eighth-graders who attended public schools in states and other jurisdictions that volunteered to participate. State-level data have been collected since 1992 at grade 4 and since 1990 at grade 8. In 2000, 40 states and 6 other jurisdictions participated at grade 4, and 39 states and 5 other jurisdictions participated at grade 8. The results of the state assessment are only for students attending public schools.

State average scores

Of the 36 states and jurisdictions that participated in both 2000 and the first state assessment at grade 4 in 1992, 26 had higher average scores in 2000 than in 1992. Of the 31 states and jurisdictions that participated in both 2000 and the first state assessment at grade 8 in 1990, 27 had higher average scores in 2000 than in 1990.

Figure C.—Average mathematics scores by percentile, grades 4, 8, and 12: 1990–2000



*Significantly different from 2000.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1990, 1992, 1996, and 2000 Mathematics Assessments. (Previously published on p. 3 of *The Nation's Report Card: Mathematics Highlights 2000*.)

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In 2000, no state scored higher at grade 4 than these nine: Connecticut, Indiana, Iowa, Kansas, Massachusetts, Minnesota, North Carolina, Texas, and Vermont. Figure D shows states' and other jurisdictions' 2000 average score performance in comparison to the national average score for public schools. Of the 46 states and jurisdictions that participated in the 2000 assessment at grade 4, 14 had scores that were higher than the national average score, 14 had scores that were not different from the national average, and 18 had scores that were lower than the national average.

In 2000, no state scored higher at grade 8 than these three: Kansas, Minnesota, and Montana. Figure E shows that of the 44 states and other jurisdictions that participated in the 2000 assessment at grade 8, 16 had scores that were higher than the national average score, 13 had scores that were not different from the national average, and 15 had scores that were lower than the national average.

State achievement level results

At grade 4, 4 states and other jurisdictions had higher percentages of students at or above *Proficient* than did the nation, 23 had percentages that were not different from the percentage for the nation, and 19 had percentages that were lower than that for the nation. At grade 8, 13 states and other jurisdictions had higher percentages of students at or above *Proficient* than did the nation, 12 had percentages that were not different from the percentage for the nation, and 19 had percentages that were lower than that for the nation.

National Results for Student Subgroups

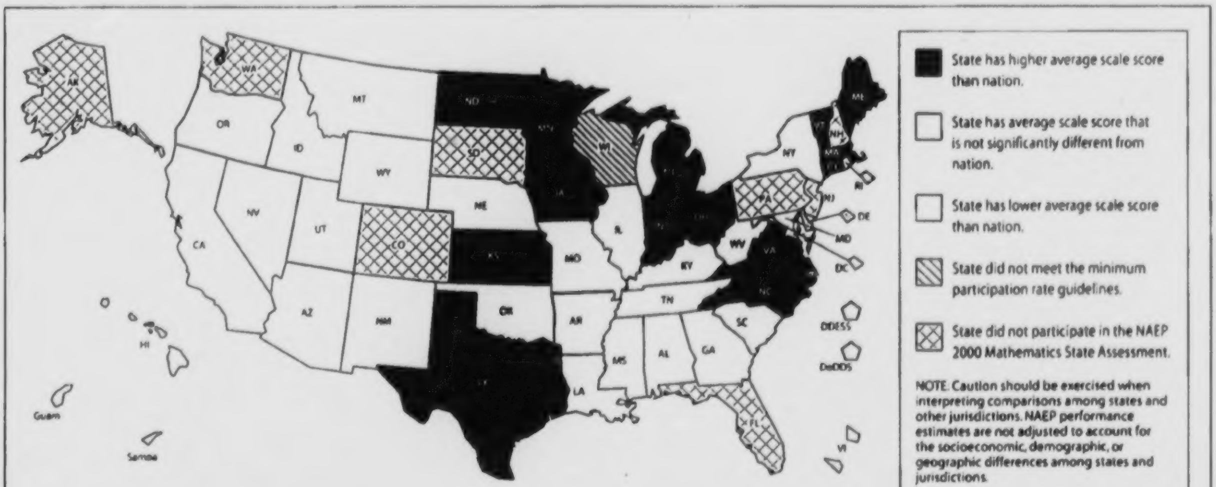
In addition to presenting information about all students' performance, NAEP also looks at the achievement of various subgroups of students. The performance of various racial/ethnic subgroups and of males and females reveals how these students did in comparison to each other in the year 2000 and whether they progressed over the past decade. While the complete report describes the performance of student subgroups at both the state and national levels, the highlights in this article are for the nation only.

When reading these results, it is important to keep in mind that there is no simple, causal relationship between membership in a subgroup and mathematics achievement. A complex mix of educational and socioeconomic factors may interact to affect student performance.

Average scores for different racial/ethnic subgroups

Of the five racial/ethnic subgroups of students identified in the 2000 mathematics assessment, three—White, Black, and Hispanic—had average scores that showed overall gains

Figure D.—State versus national average mathematics scores, grade 4 public schools: 2000


■ State has higher average scale score than nation.
☐ State has average scale score that is not significantly different from nation.
☐ State has lower average scale score than nation.
▧ State did not meet the minimum participation rate guidelines.
▩ State did not participate in the NAEP 2000 Mathematics State Assessment.
DDESS
DoDDS
Guam
Samoa
VI

NOTE: Caution should be exercised when interpreting comparisons among states and other jurisdictions. NAEP performance estimates are not adjusted to account for the socioeconomic, demographic, or geographic differences among states and jurisdictions.

DDESS: Department of Defense Domestic Dependent Elementary and Secondary Schools. DoDDS: Department of Defense Dependents Schools (Overseas).

NOTE: National results are based on the national sample, not on aggregated state assessment samples.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Mathematics Assessment. (Previously published as figure A on p. 4 of *The Nation's Report Card: Mathematics Highlights 2000*.)

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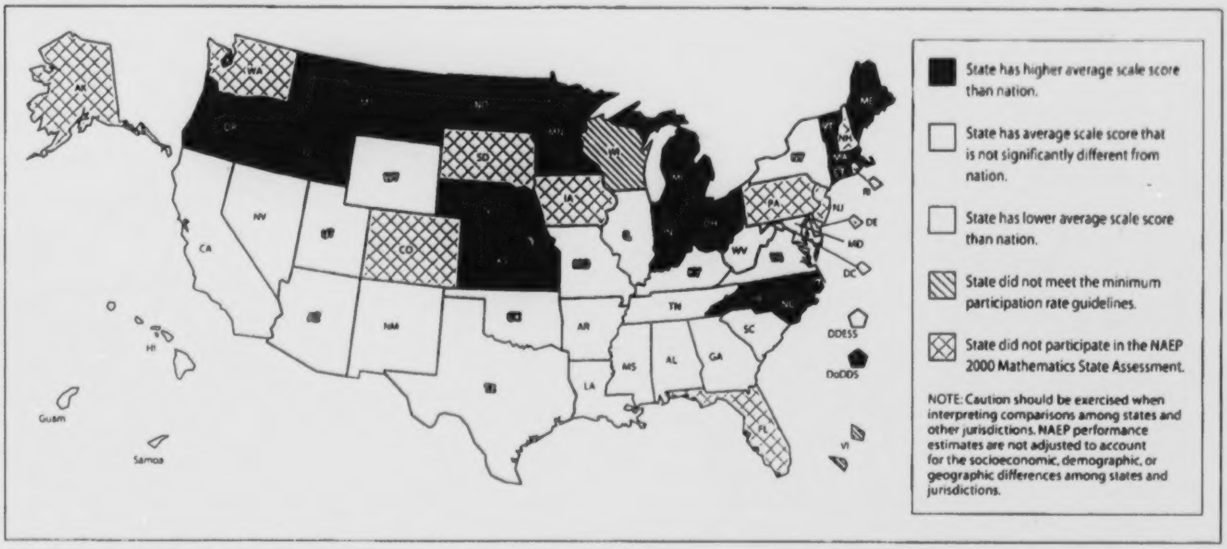
Figure E.—State versus national average mathematics scores, grade 8 public schools: 2000


AK
WA
OR
MT
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WI
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LA
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MI
IN
OH
WV
PA
NJ
DE
MD
DC
ME
VT
NH
MA
RI
HI
Guam
Samoa
DDESS
DoDDS
VI
FL
■ State has higher average scale score than nation.
□ State has average scale score that is not significantly different from nation.
□ State has lower average scale score than nation.
▨ State did not meet the minimum participation rate guidelines.
⊠ State did not participate in the NAEP 2000 Mathematics State Assessment.

NOTE: Caution should be exercised when interpreting comparisons among states and other jurisdictions. NAEP performance estimates are not adjusted to account for the socioeconomic, demographic, or geographic differences among states and jurisdictions.

DDESS: Department of Defense Domestic Dependent Elementary and Secondary Schools. DoDDS: Department of Defense Dependents Schools (Overseas).

NOTE: National results are based on the national sample, not on aggregated state assessment samples.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Mathematics Assessment. (Previously published as figure B on p. 5 of *The Nation's Report Card: Mathematics Highlights 2000.*)

since 1990. While White students were the only subgroup whose average scores were higher in 2000 than in 1990 at all three grades, Black and Hispanic students' average scores were higher than in 1990 at grades 4 and 8.

Comparing performance across the subgroups of students in 2000 shows that White and Asian/Pacific Islander students scored higher, on average, than Black, Hispanic, and American Indian students at grades 8 and 12. Asian/Pacific Islander students scored higher than White students at grade 12.

Trends in average score gaps between selected racial/ethnic subgroups

Across the assessments from 1990 to 2000, the score gaps between White and Black students and between White and Hispanic students were large at every grade. There was no evidence in the 2000 assessment of any narrowing of the racial/ethnic group score gaps since 1990.

Achievement level results for different racial/ethnic subgroups

The mathematics achievement of students in the racial/ethnic subgroups was similar to their average score performance—while there were improvements over the past 10 years, not all groups improved at all grades. At grade 4, higher percentages of White, Black, Hispanic, and American Indian students performed at or above the *Proficient* level in 2000 than in 1990. There were also higher percentages of White, Black, and Hispanic students at or above the *Basic* level in 2000 than in 1990 or 1992.

At grade 8, more White and Hispanic students were at or above *Proficient* in 2000 than in 1990, and more White, Black, and Hispanic students were at or above *Proficient* in 2000 than in 1992. At or above the *Basic* level, there were higher percentages of White, Black, and Hispanic eighth-graders in 2000 than in 1990 or 1992.

There were few changes over the decade for twelfth-graders; only White students had higher percentages at or above the *Proficient* level in 2000 than in 1990. There were also higher percentages of White students at or above the *Basic* level in 2000 than in 1990.

Comparing the subgroups' 2000 performance shows that, in general, the percentages at or above the *Basic* achievement level were higher for White and Asian/Pacific Islander students than for the other subgroups of students.

Average scores for males and females

At all three grades, both males and females had higher scores in 2000 than they did in 1990 and, at grade 4, they both showed relatively steady improvement across the four assessments from 1990 to 2000.

In 2000, males outperformed females in mathematics at grades 8 and 12. There was no significant difference between males' and females' average scores at grade 4.

Trends in average score gaps between males and females

The gap between the average scores of males and females was quite small at all three grades and fluctuated only slightly across the assessments from 1990 to 2000.

Achievement level results for males and females

At grade 4, there were higher percentages of both males and females at or above *Proficient* and at or above *Basic* in 2000 than in 1990, 1992, or 1996.

At grade 8, there were higher percentages of both males and females at or above *Proficient* in 2000 than in 1990 and 1992, and a higher percentage of males at or above *Proficient* than in 1996. There were also more male and female eighth-graders at or above *Basic* in 2000 than in 1990 or 1992, and more male eighth-graders at or above *Basic* than in 1996.

At grade 12, there were higher percentages of males and females at or above *Proficient* in 2000 than in 1990. There was a decline in the percentage of both male and female twelfth-graders at or above *Basic* in 2000 compared to 1996, although both groups' percentages were up in 2000 over 1990.

A comparison of males' and females' results in 2000 shows that there were higher percentages of males at or above *Proficient* at grades 4, 8, and 12.

Home and School Contexts for Mathematics Performance

Many factors influence students' learning. Activities that take place while students are either at school or at home as well as the attitudes they develop about learning mathematics may enhance or detract from their ability to do math. The NAEP 2000 Mathematics Assessment focused on students' performance in light of responses to questions about mathematics activities at school and at home and attitudes toward mathematics. While these findings may suggest a positive or negative relationship between performance on the mathematics assessment and certain activities or attitudes, it is important to remember that the relationships are not necessarily causal—there are many factors that play a role in mathematics performance.

Calculator use for classwork

Results from the 2000 mathematics assessment suggest a relationship between student-reported calculator use for classwork and mathematics performance that is markedly different at grade 4 than at grades 8 and 12. At grade 4, more frequent calculator use was associated with lower scores, while at grades 8 and 12 the opposite was generally true: students who said they use calculators more often tended to score higher than their peers who reported using them less frequently (figure F).

Time spent on homework

In mathematics, as in other subjects assessed by NAEP, most students who spent time doing homework every day scored higher than those who did not do homework. Only at grade 4, where homework demands are light in comparison to higher grades, did students who reported spending an hour or more on homework score lower than their peers who did not do homework. How much time in general is associated with higher mathematics performance on NAEP? Results from the 2000 mathematics assessment suggest that at grades 4 and 8, a moderate amount of time—between 15 and 45 minutes depending on grade level—is associated with a higher average score on NAEP than a longer time of 1 hour or more. This was not the case at grade 12, where there was no statistically significant difference in the performance of students spending any time between 15 minutes and 1 hour or more on mathematics homework.

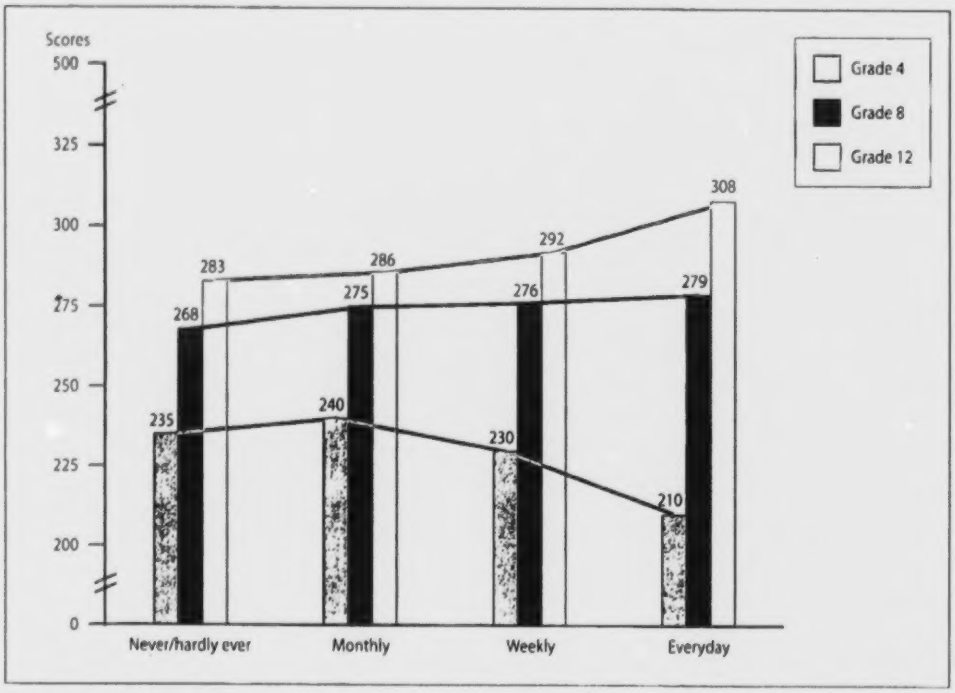
Attitudes about mathematics

The attitudes of students who took the NAEP mathematics assessment were strongly related to their performance. Students who participated in the 2000 assessment were asked to consider several statements about mathematics designed to gauge their attitudes toward the subject. The results for two of those statements are presented here: At all three grade levels, students who agreed that they like math and that math is useful for solving problems scored higher than students who disagreed with these statements.

Sample Mathematics Questions and Student Responses

Sample questions from the 2000 assessment have not been released to the public so that they can be used again in a future assessment. Therefore, the questions shown here are taken from the NAEP 1996 Mathematics Assessment. They are similar to the questions used for the 2000 assessment because the same framework was used to develop questions

Figure F.—Average mathematics scores by frequency of calculator use for classwork, grades 4, 8, and 12: 2000



SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2000 Mathematics Assessment. (Previously published on p. 11 of *The Nation's Report Card: Mathematics Highlights 2000*.)

in 1996 and 2000. The framework provides the theoretical basis for the assessment, as well as directions for what kinds of questions should be included in the assessment, how these questions should be designed, and how student responses should be scored. For details about the framework, see the complete report.

Each student assessed at grades 4, 8, and 12 received a booklet that contained three 15-minute sections of mathematics questions. These questions were presented in two formats: multiple choice and constructed response. The constructed-response questions were either short (requiring students to provide answers to computation problems or describe solutions in one or two sentences) or extended (requiring students to provide longer answers).

For each grade, two sample questions are presented here. Additional sample questions from the 1996 mathematics assessment, as well as sample questions from the 1992 and 1990 assessments, are available at the NAEP Web Site (*http://nces.ed.gov/nationsreportcard*).

Grade 4 sample questions and responses

Getting ready for algebra. Young students are prepared for the abstract world of algebra by early exposure to concepts that help them make the transition from concrete numbers to abstract expressions. The following multiple-choice question, which required students to recognize that N stands for the total number of stamps John had, puts the concept of a variable in a setting that fourth-graders can understand.

Sample multiple-choice question for grade 4

N stands for the number of stamps John had. He gave 12 stamps to his sister. Which expression tells how many stamps John has now?

Ⓐ $N + 12$
● $N - 12$
Ⓒ $12 - N$
Ⓓ 12 X N

Solving a multistep problem. Responses to the following short constructed-response question were scored on a three-level scale: *unsatisfactory, partial,* or *satisfactory.* To answer the question satisfactorily, students needed to complete three steps: (1) add the three amounts shown to get the total spent each day, (2) multiply by 5 to get the total needed for 5 days ($8.75), and (3) understand that nine $1.00 bills would be needed.

Sample short constructed-response question for grade 4

Sam can purchase his lunch at school. Each day he wants to have juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢. His mother has only $1.00 bills. What is the least number of $1.00 bills that his mother should give him so he will have enough money to buy lunch for 5 days?

Sample *satisfactory* response

A *satisfactory* response to this question gives the correct answer of nine $1.00 bills.

¢50
¢90
-¢35
1 2
$1.75
x5
$8.75

9 dollar bills

Grade 8 sample questions and responses

Understanding an algebraic expression. The following multiple-choice question required students to translate a word problem into an algebraic expression. In a formal algebra class, students are expected to set up equations with expressions like the one in choice E (the correct answer) and then determine, for example, the value of *h* if the plumber's total charge was $297.

Sample multiple-choice question for grade 8

A plumber charges customers $48 for each hour worked plus an additional $9 for travel. If *h* represents the number of hours worked, which of the following expressions could be used to calculate the plumber's total charge in dollars?

Ⓐ $48 + 9 + h$
Ⓑ $48 \times 9 \times h$
Ⓒ $48 + (9 \times h)$
Ⓓ $(48 \times 9) + h$
● $(48 \times h) + 9$

Reading and interpreting data. The following extended constructed-response question, one of the more difficult eighth-grade questions used in 1996, required students to demonstrate skills that are an important part of the junior high school mathematics curriculum. It shows two accurately drawn graphs that appear to present very different results. Responses to the question were scored on a four-level scale: *unsatisfactory, partial, satisfactory,* or *complete.* A *complete* response indicates ability to critically evaluate information presented in a graph.

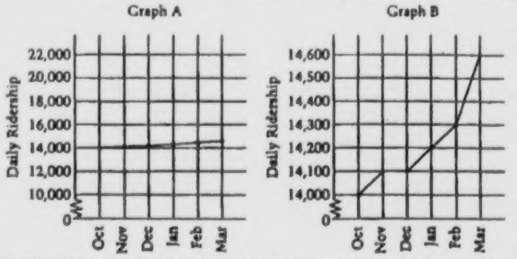
Sample extended constructed-response question for grade 8

This question requires you to show your work and explain your reasoning. You may use drawings, words, and numbers in your explanation. Your answer should be clear enough so that another person could read it and understand your thinking. It is important that you show *all* of your work.

The data in the table to the right has been correctly represented by both graphs shown below.

METRO RAIL COMPANY

Month	Daily Ridership
October	14,000
November	14,100
December	14,100
January	14,200
February	14,300
March	14,600



Which graph would be best to help convince others that the Metro Rail Company made a lot more money from ticket sales in March than in October?

Explain your reason for making this selection.

Why might people who thought that there was little difference between October and March ticket sales consider the graph you chose to be misleading?

Sample *complete* response

A *complete* response to this question gives the correct response, graph B, and provides a complete explanation.

graph B

Because it has a smaller scale for daily ridership it looks like a greater increase

Because it appears its increased a lot when it only increased $600

Sample *satisfactory* response

A *satisfactory* response to the question gives the correct response, graph B, and provides an incomplete but partially correct explanation.

Graph B because it shows how the graph goes up so much.

because it shows a big jump because all they did was make each square worth more ridership

Grade 12 sample questions and responses

Finding a missing value. The following multiple-choice question, a fairly easy one for twelfth-graders, required students to find a value that would make both equations true. To solve the problem, students could either use a formal algebraic solution process or simply substitute each of the choices until they found the correct answer.

Sample multiple-choice question for grade 12

$4 \times \square = \square$ and $\square \times 3 = \square$

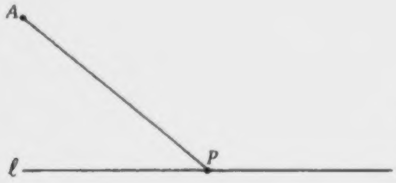
What number if placed in each box above would make both equations true?

● 0
Ⓑ 1
Ⓒ 2
Ⓓ 3
Ⓔ 4

Measuring an angle. Responses to the following short constructed-response question were scored on a two-level scale: *unsatisfactory* or *satisfactory*. In order to find the solution to the question, students needed to draw a line perpendicular to a given line, and then measure one of the angles. This is an example of a NAEP question that requires students to use a tool, such as a protractor or ruler. These tools are provided to students during the assessment.

Sample short constructed-response question for grade 12

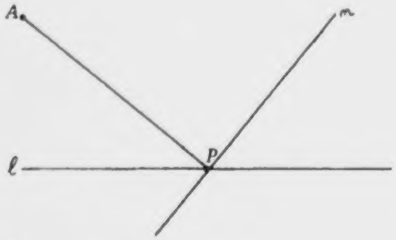
In the figure below, use the protractor to draw a line *m* through point *P* perpendicular to segment *AP*. In the answer space provided, give the measure of the smaller angle formed by lines *l* and *m*.



Answer: ____________________

Sample *satisfactory* response

The following student's response received the highest score, *satisfactory*. Both line *m* and the degree measure of the smaller angle are correct.



Answer: 50°

Data source: The National Assessment of Educational Progress (NAEP) 1990, 1992, 1996, and 2000 Mathematics Assessments.

For technical information, see the complete report:

Braswell, J.S., Lutkus, A.D., Grigg, W.S., Santapau, S.L., Tay-Lim, B., and Johnson, M. (2001). *The Nation's Report Card: Mathematics 2000* (NCES 2001–517).

Author affiliations: J.S. Braswell, A.D. Lutkus, W.S. Grigg, S.L. Santapau, B. Tay-Lim, and M. Johnson, Educational Testing Service.

For questions about content, contact Arnold Goldstein (*arnold.goldstein@ed.gov*).

To obtain the complete report (NCES 2001–517), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

To obtain the* Highlights *publication from which this article is excerpted (NCES 2001–518), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

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Invited Commentary: Policy Implications of Findings From *The Nation's Report Card: Mathematics 2000*

Debra Paulson, Eighth-Grade Mathematics Teacher, Dr. Manuel Hornedo Middle School, El Paso, Texas, and Member, National Assessment Governing Board (NAGB)

This commentary represents the opinions of the author and does not necessarily reflect the views of the National Center for Education Statistics or NAGB.

On August 2, 2001, *The Nation's Report Card: Mathematics 2000* was released. This report is an important landmark for the National Assessment of Educational Progress (NAEP). It provides findings from the NAEP 2000 Mathematics Assessment, the fourth national test in a 10-year period to assess the same mathematics content and standards. In addition to results from national tests at grades 4, 8, and 12, the report also provides results from state-level tests that began in 1992 at grade 4 and in 1990 at grade 8.

The *Mathematics 2000* report provides an abundance of statistics and information. The National Assessment Governing Board (NAGB) and the National Center for Education Statistics (NCES) have worked diligently to make reports like this one more accessible and understandable to more people. Questions that beg to be asked and answered include the following: How does all the information presented in this report relate to the mathematics that students learn in school? How are students best taught this mathematics content? and Who should be conducting the mathematics instruction? I will be exploring and highlighting some of the implications not just for policymakers, but also for parents, schools, and teachers.

Inclusion of Students Who Use Testing Accommodations

I believe that one of the most important findings emerges from comparing the two sets of results provided by this assessment: scores for students who were not permitted to use any testing accommodations and scores that include the performance of special-needs students who were provided with testing accommodations. In both 1996 and 2000, the NAEP mathematics assessment collected the two sets of results separately. At grades 4 and 8, there were no significant differences between the two sets in either 1996 or 2000. At grade 12, there was no significant difference between the two sets in 2000.

States, districts, and even schools are all grappling with the issue of including more special-needs students in assessments as well as in regular classrooms. Everyone knows this is a good idea, but the issue of accountability in assessing these students is complex. As NAEP continues to model inclusion and accommodation, perhaps this process will affirm the value of including special-needs students and dispel the uncertainty about how this inclusion will affect the reported results.

Implications of Information About Technology Use

Many implications can be drawn from the information gained from questionnaires completed by students, teachers, and school administrators. "NAEP examines the relationship between selected contextual variables drawn from these questionnaires and students' average scores on the mathematics assessment. Readers are cautioned that a relationship between a contextual variable . . . and student mathematics performance is not necessarily causal." In other words, such a relationship may or may not indicate that a particular factor directly affects students' mathematics achievement. I would like to examine several relationships between questionnaire responses and student performance in the light of my experiences as an eighth-grade mathematics teacher. My focus will be on the use of technology.

Use of computers

As computers become more and more a part of our work and personal lives, questions arise as to how much computers should be used in school, in what ways computers should be used, and whether computer use has an impact on student learning. Certainly, computers are increasingly available in classrooms at each grade level. The *Mathematics 2000* report states that the availability of computers in classrooms increased by at least 20 percentage points from 1996 to 2000, although the availability of computer labs did not change significantly during this period. Unfortunately, comparing the increase of computers in the classroom to student scores is not encouraging. There is not a direct relationship between the availability of computers in students' classrooms and increases in mathematics achievement.

I concur with these findings. Yes, I have two computers in my classroom, compared to none in 1996. But I have little mathematical software and relatively unreliable Internet access. Without a projector, it is almost impossible to effectively use two computers in a classroom with 30 students. Also, with only 44 minutes for each class, it is difficult to give students time to use the computer. Not surprisingly, teachers responding to the NAEP questionnaires quite often reported that computers were either not used at all or used primarily for math learning games or drill.

What are the implications? By themselves, computers in classrooms or labs are not going to make a difference in the amount or type of mathematics learned. Teachers need ongoing training and support in using the computer as an instructional tool. They need software and hardware, which unfortunately are often expensive, hard to find, and difficult to use. In this high-tech world, it is imperative to give students the opportunity to use computers in school. The issue is, how can computers be used to increase students' achievement in mathematics? I believe that access to and effective use of computers in schools is essential in closing the gap between those students who use technology efficiently and those students who are technologically deficient or deprived.

Use of calculators

Regarding the issue of how calculator use in the classroom relates to student performance, the results of the 2000 mathematics assessment are more encouraging and clearer as to what works and what doesn't. The proper role of calculators in the K–12 mathematics curriculum has been and continues to be debated. Calculator-use policies vary across districts and schools; even within the same school, teachers have different opinions about how calculators should be integrated with instruction. States are also deciding if, how, and when calculators should be allowed on state assessments.

At grade 4, more frequent use of calculators for mathematics activities, as reported by students, was linked to lower scores. This information seems to confirm the need for caution in the use of calculators at grade 4. Since students in elementary school are still becoming fluent in computing whole numbers, calculators need to be used more for exploring and deepening the understanding of number sense.

At grades 8 and 12, the implications are much clearer. For example, using a calculator in the eighth grade appears to benefit mathematics achievement. At grade 8, daily calculator use for mathematics activities, as reported by both students and teachers, was associated with the highest scores. In fact, teachers who permitted unrestricted use of calculators and those who permitted calculator use on tests had eighth-graders with higher average scores. Even the type of calculator that students reported using was directly related to how they performed on the mathematics assessment. Eighth-graders who used a scientific calculator scored higher than their peers who did not use one, and the same was true of eighth-graders who used a graphing calculator compared to their peers who did not. Between 1996 and 2000, the percentages of eighth-graders who reported using scientific and graphing calculators increased. Many states do allow some calculator use on grade 8 state assessments. Again, it is important for teachers not only to have access to calculators, but also to have training in how to effectively use them. The key is teaching students to use calculators as a tool and giving students calculator tasks and assessments. I know that using graphing calculators with my eighth-grade students is extremely motivating and really works best for exploring patterns or making predictions.

At grade 12, daily use of calculators was again associated with the highest scores. The type of calculator used was important, with those twelfth-graders who reported using a graphing calculator scoring an average of 25 scale-score points higher than those who did not. Though it could be argued that twelfth-graders who use graphing calculators have higher scores because they have taken more advanced mathematics courses, I contend that being able to efficiently use a graphing calculator could make the advanced mathematics courses more accessible to all students.

There are a couple of implications regarding graphing calculators. Allowing or even requiring the use of graphing calculators on state assessments has a direct effect on the number of graphing calculators in the classroom and the amount of time that they are used in classroom instruction. I have seen this happen in Texas, where the state's end-of-course exam in Algebra I requires the use of graphing calculators. These calculators are expensive, however, and states or districts need to provide funding for purchasing these calculators and for training teachers to effectively use them.

Conclusions

In conclusion, there is much to be learned from the results of the NAEP 2000 Mathematics Assessment and from comparing these results to those of past assessments. Lots of people, especially local administrators and teachers, are not knowledgeable about NAEP. I believe that since districts and schools do not receive individual student scores, many educators conclude that the information is not relevant. I beg to differ. In addition to the implications that I have already discussed, the information in NAEP reports has many other important implications for state, district, and school policies. How much homework to assign, what types of mathematics courses to offer or require, and what courses teachers need for certification—these are all examples of policies for which NAEP could have implications. The results of the NAEP assessments can help educators and policymakers make better decisions.

Using state-level results from 1990 or 1992 to 2000, states can track their own progress or look at other states that have shown dramatic increases in mathematics achievement. Mathematics learning and achievement can be affected by state policies on recommended textbooks, state curriculum guidelines, assessments, course requirements for students, and teacher certification requirements. Investigating a state's policies and the implementation of these policies over the past 8 to 10 years may provide insight about what it takes to improve mathematics achievement.

ELEMENTARY AND SECONDARY EDUCATION

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NAEP Civics Assessments

The Next Generation of Citizens: NAEP Civics Assessments: 1988 and 1998

Andrew R. Weiss, Anthony D. Lutkus, Wendy S. Grigg, and Richard G. Niemi

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the National Assessment of Educational Progress (NAEP) 1988 and 1998 Civics Assessments.

Introduction

As we move into the 21st century, our nation looks to its youth for confirmation that the government established over 200 years ago will remain relevant, vital, and strong. We expect that today's students are being prepared to understand and maintain the values of our democratic society. Civics education in our nation's schools informs students about the structures, functions, and processes of government and about the meaningful ways in which citizens can make decisions about public issues and participate in governance. This report, based on findings from the National Assessment of Educational Progress (NAEP), provides a view of students' achievement in civics over the 10-year period from 1988 to 1998. The data and information provided give some indication as to whether there have been changes in students' understanding of civics and whether civics education has changed during the last decade of the 20th century.

NAEP is the nation's only ongoing survey of what students know and can do in various academic subject areas. Authorized by Congress and administered by the National Center for Education Statistics (NCES) in the U.S. Department of Education, NAEP regularly reports to the public on the educational progress of students in grades 4, 8, and 12. In 1998, NAEP conducted two national assessments of students' civics knowledge in each of these grades.

One of the 1998 civics assessments was entirely new, employing a new set of test specifications (or "framework"). The results of this new assessment were not comparable to those of the 1988 assessment. The other 1998 civics assessment (based on the 1988 test objectives) was a special study that repeated a number of the multiple-choice test questions used in 1988.

The results of the new assessment were reported in the fall of 1999 as the *NAEP 1998 Civics Report Card for the Nation* (Lutkus et al. 1999). The results of the special study are reported here as a summary of trends in students' knowledge and teachers' classroom practices over the 10-year period.

The results are based on the assessment of a sample of students at each grade that is statistically representative of the entire nation. Students' performance is described in terms of average percentage correct, rather than the traditional NAEP scale scores. The reason for this departure is that the relatively small set of test questions repeated from 1988 in grades 8 and 12 did not allow comprehensive coverage of the 1988 test objectives, nor did it allow the reliable development of scale scores parallel to those used in 1988.

This report provides results for subgroups of students defined by various background and contextual characteristics. The analyses focus on differences between 1988 and 1998, rather than differences among groups within each year. To illustrate the civics knowledge that was assessed, the report provides numerous samples of the test questions. The report also explores trends in the classroom coverage of civics topics from 1988 to 1998, as well as trends in classroom instructional activities over the decade. A summary of the major findings from the NAEP 1998 special study is presented below.

Overall Assessment Results

- In both 1988 and 1998, students at each of the three grade levels answered about two-thirds of the assessment questions correctly.
- Fourth-grade students in 1998 answered more questions correctly, on average, than did fourth-grade students in 1988.
- Eighth-grade students in 1998 answered fewer questions correctly, on average, than their counterparts in 1988.
- The performance of 12th-grade students in 1998 was not significantly different from that of their counterparts in 1988.

Results for Student Subgroups

Gender

- Fourth-grade males had a higher percentage of correct responses in 1998 than in 1988, while 12th-grade males had a lower percentage correct in 1998.
- The percentage of correct responses for female students at grades 4, 8, and 12 did not change significantly between 1988 and 1998.

Race/ethnicity

- In 1998, the percentage of correct responses increased for White students in grade 4 and decreased for Hispanic students in grade 12.
- At all three grades in both 1988 and 1998, White students consistently achieved a higher percentage correct than either Black or Hispanic students.

Trends in Civics Topics Studied

- A trend was noted toward less frequent social studies classes in grade 4, with 49 percent of students in 1988 reporting daily classes compared to 39 percent in 1998.
- The percentage of eighth-graders who reported having studied civics or American government in grades 5, 6, and 7 rose between 1988 and 1998.
- The percentage of 12th-graders who said they were studying civics or American government in their current grade rose between 1988 (61 percent) and 1998 (71 percent).

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- The percentage of fourth-graders who reported spending "a lot" of time studying three of the six civics curriculum topics surveyed—*elections and voting, President and leaders of our country,* and *judges and courts*—increased between 1988 and 1998 (table A).
- For both 8th- and 12th-graders, the *U.S. Constitution and Bill of Rights* is the one curriculum topic, of the 10 topics surveyed at these grade levels, that was studied "a lot" by the majority of students in both 1988 and 1998.
- The amount of time spent studying the various civics topics surveyed at grades 8 and 12 was similar and has not changed between 1988 and 1998.

Trends in Contexts for Learning Civics

- The frequency with which students at grades 8 and 12 were assigned extra reading material by their civics or American government teachers increased between 1988 and 1998 (figure A).
- The percentage of 8th- and 12th-graders who reported being assigned to work on group projects at least once or twice a week rose substantially from 1988 to 1998 (figure B).
- The percentage of fourth-graders who reported discussing current events in social studies class once or twice a week increased from 29 percent in 1988 to 39 percent in 1998.
- The amount of time that 12th-graders reported spending on civics homework did not change significantly between 1988 and 1998.
- Between 1988 and 1998, the percentage of eighth-graders reporting that their families regularly got a newspaper fell from 77 percent to 71 percent. For 12th-graders, the percentage dropped from 82 percent to 75 percent.

Reference

Lutkus, A.D., Weiss, A.R., Campbell, J.R., Mazzeo, J., and Lazer, S. (1999). *NAEP 1998 Civics Report Card for the Nation* (NCES 2000–457). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Data sources: The National Assessment of Educational Progress (NAEP) 1988 and 1998 Civics Assessments.

For technical information, see the complete report:

Weiss, A.R., Lutkus, A.D., Grigg, W.S., and Niemi, R.G. (2001). *The Next Generation of Citizens: NAEP Civics Assessments: 1988 and 1998* (NCES 2001–452).

Author affiliations: A.R. Weiss, A.D. Lutkus, and W.S. Grigg, Educational Testing Service; R.G. Niemi, University of Rochester.

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To obtain the complete report (NCES 2001–452), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Table A.—Percentage of students who reported how much they studied selected civics topics, grade 4: 1988 and 1998

How much have you studied the following topics in American government or civics?	Percentage of students					
	A lot		Some		Not at all	
	1988	1998	1988	1998	1988	1998
How laws are made	21	24	52	54	27	23
About judges and courts	7	< 13	33	< 38	60	> 49
President and leaders of our country	33	< 37	48	49	19	> 14
Elections and voting	13	< 19	47	< 54	39	> 27
Your community	47	48	40	42	12	10
The rights and responsibilities of citizens	27	33	47	48	25	> 20

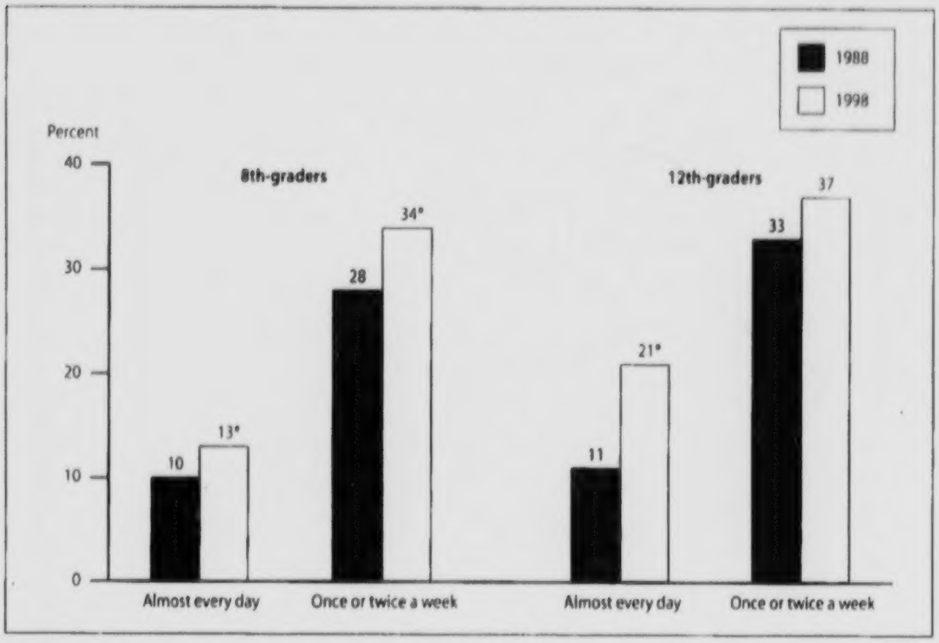
> 1988 significantly greater than 1998.

< 1988 significantly less than 1998.

NOTE: Percentages may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1988 and 1998 Civics Assessments. (Originally published as table 2.3 on p. 28 of the complete report from which this article is excerpted.)

Figure A.—Percentage of 8th- and 12th-graders who reported being assigned extra reading material almost every day or once or twice a week: 1988 and 1998

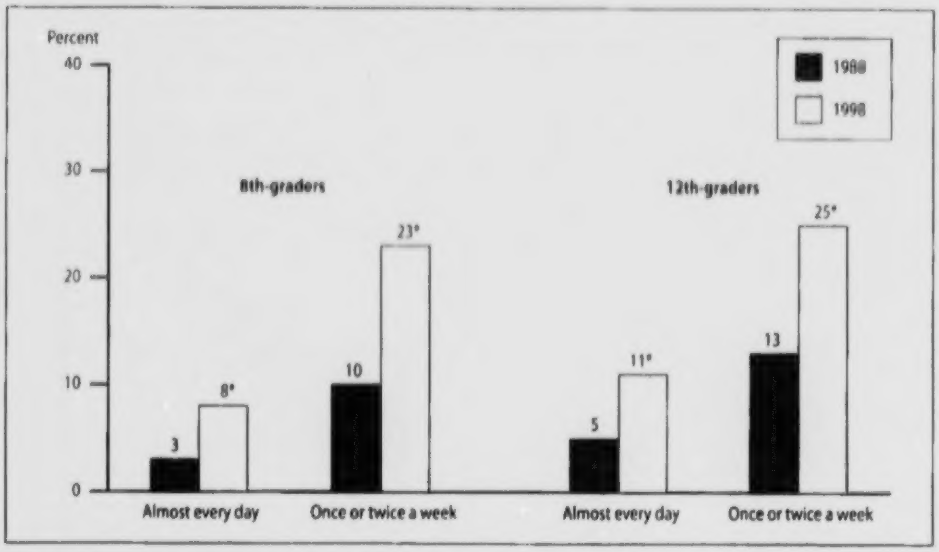


*Significantly greater than 1988.

NOTE: "Extra reading material" means reading material not in regular textbook.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1988 and 1998 Civics Assessments. (Based on tables 3.1 and 3.2 on pp. 34 and 35 of the complete report from which this article is excerpted.)

Figure B.—Percentage of 8th- and 12th-graders who reported working on group projects almost every day or once or twice a week: 1988 and 1998



*Significantly greater than 1988.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 1988 and 1998 Civics Assessments. (Based on tables 3.1 and 3.2 on pp. 34 and 35 of the complete report from which this article is excerpted.)

Homeschooling in the United States: 1999

Stacey Bielick, Kathryn Chandler, and Stephen P. Broughman

This article was originally published as the Statistical Analysis Report of the same name. The Highlights and the Methodology and Technical Notes from the original report have been omitted. The sample survey data are from the NCES National Household Education Surveys Program (NHES).

Background

Past estimates of the number of homeschoolers vary by hundreds of thousands of children. Brian Ray, president of the National Home Education Research Institute, estimated the number of homeschoolers to be around 1.15 million during the 1996–97 school year, and predicted that the number would grow to at least 1.3 million during 1999–2000 (Ray 1997). Patricia M. Lines, through her research at the U.S. Department of Education, National Institute on Student Achievement, Curriculum, and Assessment, estimated the number of homeschoolers to be around 700,000 during 1995–96, possibly growing to 1 million by 1997–98 (Lines 1999). Both Ray and Lines grant that their estimates probably anchor the range within which the actual number of homeschoolers could fall.

The methods used by Ray and Lines in the development of their estimates varied. Ray derived his most recent estimate of the number of homeschoolers using his own 1995 survey of homeschoolers and their use of curricular packages as his base and sales of homeschooling curricular packages to adjust for growth over time. Ray applied the ratio of users of curricular packages and nonusers identified in the 1995 survey to more recent sales of homeschool curricular packages to obtain his 1999–2000 estimate. Lines collected data from all states that obtained records on homeschooling children in both the 1990–91 and 1995–96 school years (32 states and the District of Columbia). Using the 12 states with high record-collection rates for homeschoolers, based on Ray's estimates of the percentage of homeschoolers who reported filing in their state, Lines estimated the percentage of school-aged children who were homeschooling in those 12 states. Lines estimated the number of children homeschooled nationally by applying the percentage distribution of homeschoolers from the state sample to national totals of school-aged children.

The National Center for Education Statistics (NCES) was the first organization to attempt to estimate the number of homeschoolers in the United States using a rigorous sample survey of households. A household sampling frame circumvents problems inherent in the use of incomplete sample frames, such as customers of curricular providers and administrative records. Attempts to develop estimates of homeschoolers through household surveys, however, can also be problematic. The first two efforts to estimate homeschoolers at NCES—through the October supplement to the 1994 Current Population Survey (CPS:Oct94) and through the Parent and Family Involvement in Education/Civic Involvement Survey of the National Household Education Surveys Program, 1996 (PFI/CI-NHES:1996)—produced very different estimates. One problem that may have contributed to the varying estimates was the difference in how the two surveys identified students who were both homeschooled and enrolled in school part time. Neither survey collected precise data on these part-time homeschoolers. An NCES technical report, *Issues Related to Estimating the Home-Schooled Population in the United States With National Household Survey Data*, explores in detail the differences in survey design and execution that may have contributed to the disparity between the CPS:Oct94 and PFI/CI-NHES:1996 estimates (Henke et al. 2000).

In this report, the Parent Survey of the National Household Education Surveys Program, 1999 (Parent-NHES:1999) is used to estimate the number of homeschoolers in the United States, to describe the characteristics of homeschoolers, and to document parents' reasons for homeschooling and parents' reports of public school support for homeschoolers. Students were considered to be homeschooled if their parents reported them being schooled at home instead of at a public or private school, if their enrollment in public or private schools did not exceed 25 hours a week, and if they were not being homeschooled solely because of a temporary illness. The unweighted number of homeschooled students used in this analysis is 275 and the unweighted number of nonhomeschooled students is 16,833. Students are defined in this report as children ages 5 to 17 with a grade equivalent of kindergarten through grade 12.

Estimated Number of Homeschooled Students in the United States

Approximately 850,000 students were being homeschooled during the spring of 1999, according to data from the Parent-NHES:1999 (table 1). Homeschoolers accounted for 1.7 percent of students nationwide, ages 5 to 17, with a grade equivalent of kindergarten through grade 12. The estimate includes students who were homeschooled while also enrolled in school for 25 hours or less per week, and excludes students who were homeschooled due to a temporary illness.

As with all sample surveys, the numbers and percentages in this report are estimates of the numbers and percentages in the population. Although 850,000 is the best population estimate available from this sample survey, another similar sample survey might produce a different estimate. A 95 percent confidence interval defines a range of values such that 95 percent of the estimates from other similar surveys will fall within the range of values. The 95 percent confidence interval for the number of homeschoolers is 709,000 to 992,000. The estimate provided here—850,000—is the midpoint of the range. Figure 1 illustrates the confidence interval.

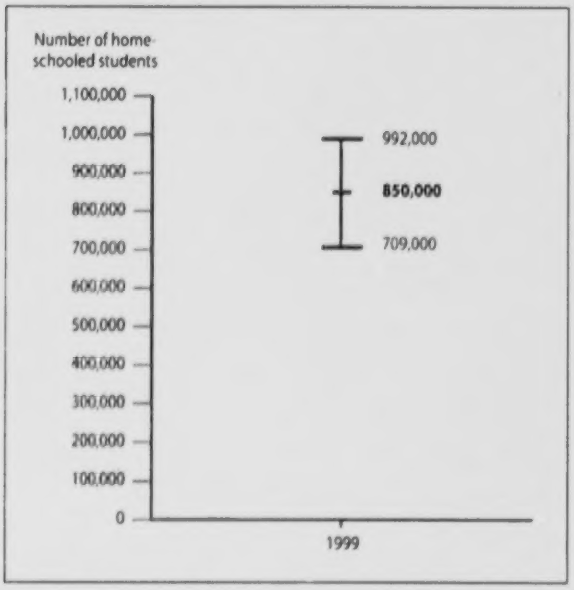
Table 1.—Number and percentage of homeschooled students, ages 5–17, with a grade equivalent of kindergarten to grade 12, by school enrollment status: 1999

School enrollment status	Number of homeschooled students	Percent	s.e.
Total	850,000	100.0	0.14
Only homeschooled	697,000	82.0	2.94
Enrolled in school part time	153,000	18.0	2.94
Enrolled in school for less than 9 hours a week	107,000	12.6	2.81
Enrolled in school for 9 to 25 hours a week	46,000	5.4	1.50

NOTE: s.e. is standard error. Excludes students who were enrolled in school for more than 25 hours and students who were homeschooled due to a temporary illness. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Parent Survey of the National Household Education Surveys Program, 1999 (Parent-NHES:1999).

Figure 1.—Point estimate and 95 percent confidence interval for number of homeschooled students, ages 5–17, with a grade equivalent of kindergarten to grade 12: 1999



SOURCE: U.S. Department of Education, National Center for Education Statistics, Parent Survey of the National Household Education Surveys Program, 1999 (Parent-NHES:1999).

Characteristics of Homeschooled Students and Their Families

Despite research limitations on documenting the number of homeschoolers, recent research on homeschooling helps suggest some characteristics of students and families who homeschool. An extensive 1998 study of homeschoolers, although based on a convenience sample, suggests that homeschoolers differ from the general population in parents' educational attainment, household income, parents' marital status, and family size (Rudner 1999).[1] Other research suggests that although homeschooling in the United States may once have been primarily a trend within a homogeneous subgroup of White, middle-class, Christian families, growth in homeschooling may be reaching a broader range of American families and values (McDowell, Sanchez, and Jones 2000; Lines 2000a; Welner and Welner 1999).

The Parent-NHES:1999 provides descriptive data about the characteristics of homeschoolers in the United States and their families. This report includes students who were homeschooled only and students who were homeschooled and enrolled in school for 25 hours or less per week. As shown in table 1, about four out of five homeschoolers were homeschooled only (82 percent) and one out of five homeschoolers were enrolled in public or private schools part time (18 percent).

Table 2 shows the number of all students by selected characteristics, the number of homeschooled students by those same characteristics, and for each characteristic the percentage of students who are homeschooled. As shown in table 2, the percentage of students who were homeschooled in 1999 differed based on various characteristics of students and their families. Depending on these student and family characteristics, the percentage of homeschoolers among students ranged from 0.7 to 4.6 percent. Characteristics that distinguished high percentages of homeschooling were two-parent families, especially when only one parent participated in the labor force; large family size; and parents' high educational attainment. The percentage of students who were homeschooled was similar for both boys and girls; across elementary, middle, and high school grades; and across the four income ranges used in the analysis.

Table 3 further explores the characteristics that distinguish homeschoolers by comparing the characteristics of homeschoolers to those of all students and to the characteristics of nonhomeschoolers. The similarities and differences between homeschoolers and nonhomeschoolers are discussed in detail below.

Grade equivalent of homeschooled students

Homeschoolers distribute over the grade groupings in much the same way as nonhomeschoolers (table 3). While it may appear that a higher percentage of homeschoolers were in kindergarten compared to nonhomeschoolers, the difference was not statistically significant.

Students' race/ethnicity and sex

A greater percentage of homeschoolers compared to nonhomeschoolers were White, non-Hispanic—75 percent compared to 65 percent. At the same time, a smaller percentage of homeschoolers were Black, non-Hispanic students and a smaller percentage were Hispanic students. Girls and boys were equally represented among homeschoolers and nonhomeschoolers.

Number of children living in the household

A much greater percentage of homeschoolers than nonhomeschoolers came from families with three or more children—62 percent of homeschooled students were part of families with three or more children compared to 44 percent of nonhomeschoolers. Homeschoolers were just as likely as nonhomeschoolers to be an only child and were less likely than nonhomeschoolers to have just one sibling.

Number of parents living in the household and labor force participation

In order to homeschool, parents may need to dedicate a significant amount of time to schooling their children. Because of the time required, homeschooling usually involves two parents—one who participates in the labor force and one who homeschools. Rudner (1999) found that 97 percent of homeschooling parents were married couples. The Parent-NHES:1999 shows the percentage of homeschooled students living in two-parent households was much higher than the percentage for nonhomeschoolers—80 percent of homeschooled students lived in two-parent families compared to 66 percent for nonhomeschoolers. In addition, 52 percent of homeschoolers came from two-parent families where only one parent was participating in the labor force compared to 19 percent for nonhomeschoolers.

Household income

Although Rudner found that the median household income of homeschooling families was higher than the median household income of families with children nationwide, the Parent-NHES:1999 indicates that the household income of

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[1] Rudner's study is based on a survey administered by Bob Jones University to a sample drawn from parents who used the university's standardized testing program (Welner and Welner 1999).

Table 2.—Number of students and number and percent of homeschooled students, ages 5–17, with a grade equivalent of kindergarten to grade 12, by selected characteristics: 1999

Characteristic	Number of students	Homeschooled students Number	 Percent of all students	 s.e.
Total	50,188,000	850,000	1.7	0.14
Grade equivalent[1]				
K–5	24,428,000	428,000	1.8	0.20
Kindergarten	3,790,000	92,000	2.4	0.52
Grades 1–3	12,692,000	199,000	1.6	0.29
Grades 4–5	7,946,000	136,000	1.7	0.28
Grades 6–8	11,788,000	186,000	1.6	0.24
Grades 9–12	13,954,000	235,000	1.7	0.24
Race/ethnicity				
White, non-Hispanic	32,474,000	640,000	2.0	0.19
Black, non-Hispanic	8,047,000	84,000	1.0	0.31
Hispanic	7,043,000	77,000	1.1	0.25
Other	2,623,000	49,000	1.9	0.65
Sex				
Female	24,673,000	434,000	1.8	0.19
Male	25,515,000	417,000	1.6	0.17
Number of children in the household				
One child	8,226,000	120,000	1.5	0.24
Two children	19,883,000	207,000	1.0	0.14
Three or more children	22,078,000	523,000	2.4	0.30
Number of parents in the household				
Two parents	33,007,000	683,000	2.1	0.21
One parent	15,454,000	142,000	0.9	0.16
Nonparental guardians	1,727,000	25,000	1.4	0.82
Parents' participation in the labor force				
Two parents—one in labor force	9,628,000	444,000	4.6	0.55
Two parents—both in labor force	22,880,000	237,000	1.0	0.17
One parent—in labor force	13,907,000	98,000	0.7	0.16
No parent in labor force	3,773,000	71,000	1.9	0.48
Household income				
$25,000 or less	16,776,000	262,000	1.6	0.27
$25,001–50,000	15,220,000	278,000	1.8	0.24
$50,001–75,000	8,576,000	162,000	1.9	0.30
$75,001 or more	9,615,000	148,000	1.5	0.28
Parents' highest educational attainment				
High school diploma or less	18,334,000	160,000	0.9	0.15
Voc/tech degree or some college	15,177,000	287,000	1.9	0.25
Bachelor's degree	8,269,000	213,000	2.6	0.42
Graduate/professional school	8,407,000	190,000	2.3	0.46
Urbanicity[2]				
City	31,178,000	455,000	1.5	0.16
Town	6,237,000	120,000	1.9	0.39
Rural	12,773,000	275,000	2.2	0.31

[1] Students whose grade equivalent was "ungraded" were excluded from the grade analysis.

[2] Urbanicity is based on a U.S. Census classification of places as urban or rural. City is a place that is urban, inside an urban area; town is a place that is urban, outside an urban area; rural is a place not classifed as urban.

NOTE: s.e. is standard error. Detail may not add to totals because of rounding. Number and percent of homeschoolers excludes students who were enrolled in school for more than 25 hours and students who were homeschooled due to a temporary illness.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Parent Survey of the National Household Education Surveys Program, 1999 (Parent-NHES:1999).

Table 3.—Distribution of all students, homeschooled students, and nonhomeschooled students, ages 5–17, with a grade equivalent of kindergarten to grade 12, by selected characteristics: 1999

Characteristic	Number of students	All students		Homeschoolers[1]		Nonhomeschoolers	
		Percent	s.e.	Percent	s.e.	Percent	s.e.
Total	50,188,000	100.0		100.0		100.0	
Grade equivalent[2]							
K–5	24,428,000	48.7	0.07	50.4	3.75	48.7	0.09
Kindergarten	3,790,000	7.6	0.04	10.8	2.31	7.5	0.05
Grades 1–3	12,692,000	25.3	0.04	23.5	3.61	25.3	0.07
Grades 4–5	7,946,000	15.8	0.02	16.0	2.34	15.8	0.05
Grades 6–8	11,788,000	23.5	0.04	21.9	2.83	23.5	0.06
Grades 9–12	13,954,000	27.8	0.10	27.7	3.21	27.8	0.11
Race/ethnicity							
White, non-Hispanic	32,474,000	64.7	0.32	75.3	3.36	64.5	0.33
Black, non-Hispanic	8,047,000	16.0	0.20	9.9	2.80	16.1	0.21
Hispanic	7,043,000	14.0	0.17	9.1	2.06	14.1	0.17
Other	2,623,000	5.2	0.23	5.8	2.01	5.2	0.23
Sex							
Female	24,673,000	49.2	0.47	51.0	3.27	49.1	0.47
Male	25,515,000	50.8	0.47	49.0	3.27	50.9	0.47
Number of children in the household							
One child	8,226,000	16.4	0.30	14.1	2.53	16.4	0.30
Two children	19,883,000	39.6	0.42	24.4	3.06	39.9	0.42
Three or more children	22,078,000	44.0	0.48	61.6	3.97	43.7	0.49
Number of parents in the household							
Two parents	33,007,000	65.8	0.41	80.4	3.26	65.5	0.42
One parent	15,454,000	30.8	0.41	16.7	2.91	31.0	0.42
Nonparental guardians	1,727,000	3.4	0.17	2.9	1.70	3.5	0.17
Parents' participation in the labor force							
Two parents—one in labor force	9,628,000	19.2	0.39	52.2	4.27	18.6	0.39
Two parents—both in labor force	22,880,000	45.6	0.48	27.9	3.92	45.9	0.48
One parent—in labor force	13,907,000	27.7	0.44	11.6	2.53	28.0	0.44
No parent in labor force	3,773,000	7.5	0.32	8.3	2.21	7.5	0.32
Household income							
$25,000 or less	16,776,000	33.4	0.22	30.9	4.31	33.5	0.22
$25,001–50,000	15,220,000	30.3	0.47	32.7	4.00	30.3	0.47
$50,001–75,000	8,576,000	17.1	0.38	19.1	2.62	17.1	0.38
$75,001 or more	9,615,000	19.2	0.42	17.4	2.65	19.2	0.42
Parents' highest educational attainment							
High school diploma or less	18,334,000	36.5	0.43	18.9	2.88	36.8	0.43
Voc/tech degree or some college	15,177,000	30.2	0.43	33.7	3.85	30.2	0.44
Bachelor's degree	8,269,000	16.5	0.36	25.1	3.49	16.3	0.35
Graduate/professional school	8,407,000	16.8	0.41	22.3	4.17	16.7	0.40
Urbanicity[3]							
City	31,178,000	62.1	0.36	53.5	4.13	62.3	0.36
Town	6,237,000	12.4	0.34	14.2	2.59	12.4	0.35
Rural	12,773,000	25.5	0.23	32.4	3.81	25.3	0.23

[1] Excludes students who were enrolled in school for more than 25 hours and students who were homeschooled due to a temporary illness.

[2] Students whose grade equivalent was "ungraded" were excluded from the grade analysis.

[3] Urbanicity is based on a U.S. Census classification of places as urban or rural. City is a place that is urban, inside an urban area; town is a place that is urban, outside an urban area; rural is a place not classifed as urban.

NOTE: s.e. is standard error. Detail may not add to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Parent Survey of the National Household Education Surveys Program, 1999 (Parent-NHES:1999).

homeschoolers, reported in ranges from less than $25,000 to over $75,000, is the same as the household income of nonhomeschoolers. The same percentage of homeschooled and nonhomeschooled students lived in households with annual incomes of $50,000 or less (64 percent).[2]

Parents' highest educational attainment

Parents' highest educational attainment, however, was clearly associated with homeschooling. Parents of homeschoolers had higher levels of educational attainment than did parents of nonhomeschoolers. Table 3 shows that 37 percent of parents of nonhomeschoolers did not complete any schooling beyond high school, compared to 19 percent of parents of homeschoolers. Conversely, 25 percent of parents of homeschoolers attained bachelor's degrees as their highest degree, compared to 16 percent of parents of nonhomeschoolers.

Urbanicity

Urbanicity refers to the classification of households as urban or rural. There are two classifications of urban, which are referred to in this report as cities and towns. Places not classified as urban are rural. The percentage of homeschoolers living in a city was about 9 percentage points lower than the percentage for nonhomeschoolers (53 and 62 percent, respectively). There were no statistically significant differences between the percentages of homeschoolers and nonhomeschoolers living in towns or rural areas.

Parents' Reasons for Homeschooling

Parents may homeschool their children for a number of reasons. Previous studies suggest that the most common reasons that parents give for homeschooling their children are moral or religious reasons, a desire for high educational achievement, dissatisfaction with public schools' instructional program, and concerns about school environment, including safety, drugs, and peer pressure (Lines 2000a; Grubb 1998; Mayberry 1991).

Parents gave a wide range of reasons for homeschooling in the Parent-NHES:1999.[3] Parents were asked to list their reasons for homeschooling and could provide as many reasons as applied. The reasons parents gave were coded into 16 categories and included better education, religious reasons, and poor school environment. Figure 2 shows 10 reasons cited by at least 5 percent of students' parents. Additional reasons are listed in table 4.

Public School Support for Homeschooled Students

Public schools or school districts sometimes offer support for homeschoolers by providing parents with a curriculum, books and materials, places to meet, and the opportunity for homeschooled children to attend classes and participate in extracurricular activities at the school. Previous research found that only a small percentage of homeschoolers enrolled in classes, used textbooks, or used libraries when they were made available by public schools and that many homeschoolers express antipathy toward using public school support (Lines 2000b; Yeager 1999; Mayberry et al. 1995).

Table 5 shows the different types of public school support for homeschoolers asked about in the Parent-NHES:1999. Parents of homeschoolers were asked whether their child's assigned school or district offered any of the eight prespecified types of support shown in table 5. The estimates are based on parents' reports of public school support and use, not what schools or districts may actually offer. Between 15 and 38 percent of homeschoolers' parents did not know whether various types of support were offered.

The first two columns of estimates in table 5 show that, altogether, 28 percent of homeschoolers' parents reported that public schools or districts offered extracurricular activities, 21 percent reported curriculum support, and 23 percent reported books and materials. Between about 3 and 11 percent of homeschoolers' parents said that support was available and that they used the support, and between about 5 and 22 percent said that the support was available but they did not use it. For example, as table 5 shows, about 6 percent of homeschoolers' parents reported that they had the chance to attend extracurricular activities and used this type of support, and 11 percent reported that schools offered books and materials and that they used this type of public school support.

Future Research Plans

NCES plans to collect and report data about homeschoolers with future Parent and Family Involvement in Education Surveys (PFI), slated to occur on a 4-year cycle next scheduled for 2003 as part of the National Household Education Surveys Program (NHES). Future Parent and Family Involvement in Education Surveys will provide a comprehensive set of information that may be used to estimate the number and characteristics of homeschoolers in the United States. Future areas of inquiry might also include items on homeschoolers'

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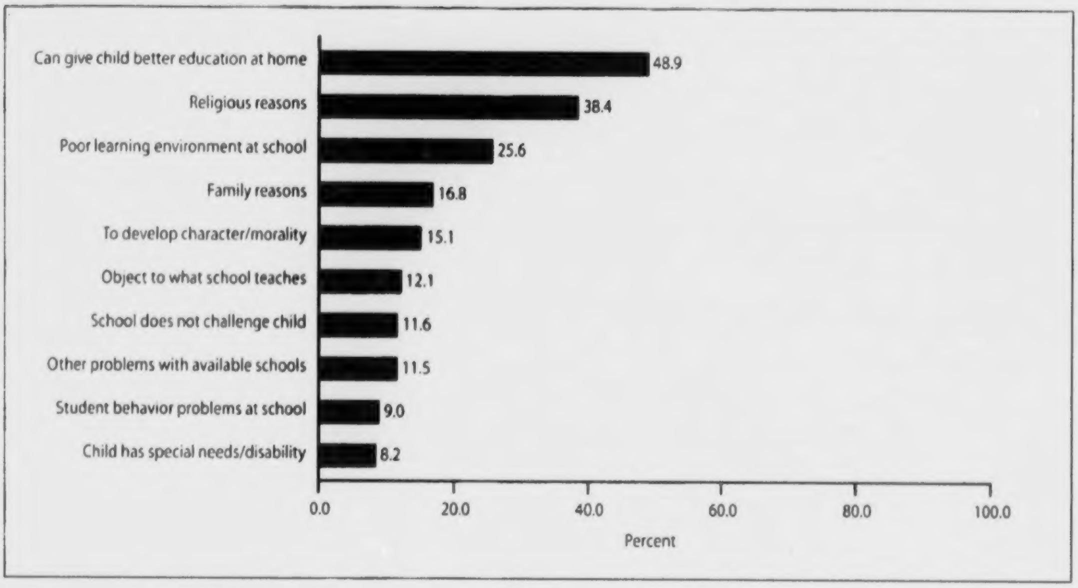
[2] An additional analysis of household income in two-parent families where only one parent was participating in the labor force also shows no difference between homeschoolers and nonhomeschoolers (data not shown in tables).

[3] The unit of analysis in the Parent-NHES:1999 is the student, not the parent. In each household, up to two children may have been sampled for the survey. In the Parent-NHES:1999, there were 30 households in which parents completed interviews about two homeschooled children. In 16 of those cases, the parents gave the exact same reasons for homeschooling for both children.

Figure 2.—Ten reasons for homeschooling and the percentage of homeschooled students whose parents gave each reason: 1999



NOTE: Percentages do not add to 100 percent because respondents could give more than one reason.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Parent Survey of the National Household Education Surveys Program, 1999 (Parent-NHES:1999).

Table 4.—Number and percentage of homeschooled students, by reason for homeschooling: 1999

Reasons for homeschooling	Number of homeschooled students	Percent	s.e.
Can give child better education at home	415,000	48.9	3.79
Religious reasons	327,000	38.4	4.44
Poor learning environment at school	218,000	25.6	3.44
Family reasons	143,000	16.8	2.79
To develop character/morality	128,000	15.1	3.39
Object to what school teaches	103,000	12.1	2.11
School does not challenge child	98,000	11.6	2.39
Other problems with available schools	98,000	11.5	2.20
Student behavior problems at school	76,000	9.0	2.40
Child has special needs/disability	69,000	8.2	1.89
Transportation/convenience	23,000	2.7	1.48
Child not old enough to enter school	15,000	1.8	1.13
Want private school but cannot afford it	15,000	1.7	0.77
Parent's career	12,000	1.5	0.80
Could not get into desired school	12,000	1.5	0.99
Other reasons*	189,000	22.2	2.90

*Parents homeschool their children for many reasons that are often unique to their family situation. "Other reasons" parents gave for homeschooling in the Parent-NHES:1999 included the following: It was the child's choice; to allow parents more control over what their children were learning; flexibility; and parents wanted year-round schooling.

NOTE: s.e. is standard error. Excludes students who were enrolled in school for more than 25 hours and students who were homeschooled due to a temporary illness. Percentages do not add to 100 percent because respondents could choose more than one reason.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Parent Survey of the National Household Education Surveys Program, 1999 (Parent-NHES:1999).

Table 5.—Percentage of homeschooled students whose parents reported availability and use of support from public schools or districts: 1999

Type of support	Available and not used		Available and used		Not available		Don't know if available	
	Percent	s.e.	Percent	s.e.	Percent	s.e.	Percent	s.e.
Curriculum	12.4	2.35	8.1	2.20	49.0	3.55	30.5	3.79
Books/materials	12.2	2.22	10.6	2.47	50.0	3.92	27.3	3.95
Place for parents to meet or get information	8.9	1.77	6.4	1.57	63.5	3.57	21.2	2.97
Web site for parents	#	#	#	#	53.7	4.84	37.5	4.75
Place for students to meet	4.7	1.26	7.0	1.66	69.0	3.29	19.3	2.77
Web site for students	#	#	#	#	60.2	4.30	34.5	4.21
Extracurricular activities	21.5	2.85	6.4	1.90	56.4	3.99	15.8	2.95
Chance to attend some classes*	16.5	2.91	2.8	1.32	49.4	4.09	31.3	4.10

*Data not available for students who attended private schools part time and for students who attended public schools for less than 9 hours. Estimates are based on the number of full-time homeschoolers reporting and the number of students "using" public schools for 9 to 25 hours.

#Too few cases for a reliable estimate.

NOTE: s.e. is standard error. Excludes students who were enrolled in school for more than 25 hours and students who were homeschooled due to a temporary illness.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Parent Survey of the National Household Education Surveys Program, 1999 (Parent-NHES:1999).

use of distance learning and the Internet, information about families' past use of homeschooling, more information about homeschoolers who attend school for some classes or subjects, and specific information about homeschoolers' plans for postsecondary education.

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Teacher Preparation

Teacher Preparation and Professional Development: 2000

Basmat Parsad, Laurie Lewis, and Elizabeth Farris

This article was originally published as the Executive Summary of the E.D. Tabs report of the same name. The sample survey data are from two surveys conducted through the NCES Fast Response Survey System (FRSS): "Survey on Professional Development and Training in U.S. Public Schools: 1999–2000" and "Teacher Survey on Professional Development and Training."

Introduction

Concerns about the quality of the nation's public education system have increased attention to key elements of teacher effectiveness within recent years (Darling-Hammond 2000; Lewis et al. 1999; Mayer, Mullens, and Moore 2001; National Commission on Teaching and America's Future 1996). While there is little consensus on what constitutes high-quality teachers, past research has emphasized two broad dimensions of teacher effectiveness: (1) the level of knowledge and skills that teachers bring to the classroom, as measured by teacher preparation and qualifications, and (2) classroom practices. In 1998, the National Center for Education Statistics (NCES) conducted a survey through its Fast Response Survey System (FRSS) to provide a national profile on the first dimension of teacher quality—teacher preparation and qualifications (Lewis et al. 1999).

In 2000, NCES conducted a second FRSS survey to revisit the issue of teacher preparation and qualifications and measure change since 1998. The sample for the 2000 survey consisted of 5,253 full- and part-time teachers in regular elementary, middle, and high schools in the 50 states and the District of Columbia. The survey repeated some of the indicators of teacher quality examined in the 1998 survey, in addition to exploring issues such as follow-up to professional development. Specifically, this survey provides a national profile on (1) teacher education, (2) teacher participation in formal professional development and collaborative activities related to teaching, and (3) teachers' feelings of preparedness for various classroom demands. This report summarizes key findings from the 2000 survey and also makes comparisons with the 1998 data.

Key Findings

Teacher education

One measure of teacher education is the type of degree held, including advanced degrees. Findings from the 2000 survey indicate that

- Virtually all public school teachers had a bachelor's degree, and 45 percent held a master's degree. One percent each held a doctorate or some other degree, and 18 percent reported having other certificates.
- Newer teachers were less likely than more experienced teachers to report having a master's degree, ranging from 20 percent of teachers with 3 or fewer years of teaching experience to 54 percent of teachers with 10 or more years of teaching experience.

Teacher professional development

Formal professional development and collaboration with other teachers are key mechanisms for providing teachers with ongoing training opportunities (Henke, Chen, and Geis 2000; National Commission on Teaching and America's Future 1996; Sprinthall, Reiman, and Theis-Sprinthall 1996). Formal professional development as commonly practiced, typically consisting of school and district staff development programs, however, has been criticized for being short term and lacking in continuity and adequate follow-up (Fullan 1991; Lewis et al. 1999; Mullens et al. 1996). Results of the 2000 survey indicate that during the 12 months preceding the survey

- Public school teachers were most likely to have participated in professional development that focused on state or district curriculum and performance standards (80 percent; table A). More than one-half participated in professional development programs focused on the integration of educational technology into the grade or subject taught (74 percent), in-depth study in the subject area of the main teaching assignment (72 percent), implementing new methods of teaching (72 percent), and student performance assessment (62 percent). Teachers were less likely to have participated in professional development that focused on addressing the needs of students with disabilities (49 percent); encouraging parent and community involvement (46 percent); classroom management, including student discipline (45 percent); and addressing the needs of students from diverse cultural backgrounds (41 percent). The professional development area in which teachers were least likely to participate was addressing the needs of students with limited English proficiency (26 percent).*

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*The estimate for teacher participation in professional development on addressing the needs of students with limited English proficiency was based on all public school teachers rather than teachers who taught students with those needs.

Table A.—Percent of public school teachers who participated in professional development activities during the last 12 months that focused on various content areas, by number of hours spent on the activity: 2000

Content area	Participated in activity	Total hours spent		
		1 to 8	9 to 32	More than 32
State or district curriculum and performance standards	80	57	31	12
Integration of educational technology into the grade or subject taught	74	61	28	11
In-depth study in the subject area of main teaching assignment	72	43	34	23
New methods of teaching (e.g., cooperative learning)	72	59	29	11
Student performance assessment (e.g., methods of testing, applying results to modify instruction)	62	67	25	8
Addressing the needs of students with disabilities	49	72	19	8
Encouraging parent and community involvement	46	75	18	8
Classroom management, including student discipline	45	73	20	7
Addressing the needs of students from diverse cultural backgrounds	41	71	20	9
Addressing the needs of students with limited English proficiency	26	68	20	12

NOTE: Percentages for total hours spent in the activity are based on public school teachers who participated in professional development over the 12 months preceding the survey. Percents are computed across each row, but may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Professional Development and Training in U.S. Public Schools, 1999–2000," FRSS 74, 2000. (Originally published as table 2 on p. 15 of the complete report from which this article is excerpted.)

- For all but one content area of professional development, teachers typically reported that they had spent 1 to 8 hours, or the equivalent of 1 day or less, on the activity during the 12 months preceding the survey (table A). In-depth study in the subject area of the main teaching assignment was the only area of professional development in which participation typically lasted more than 8 hours.
- The number of hours teachers spent in professional development activities was related to the extent to which they believed that participation improved their teaching. For every content area examined in the survey, teachers who participated for more than 8 hours were more likely than those who spent 1 to 8 hours to report that participation improved their teaching a lot.

Teacher collaboration

Collaboration with other teachers may revolve around joint work (e.g., team teaching and mentoring) and teacher networks (e.g., school-to-school and school-university partnerships). The 2000 survey findings indicate that

- The most frequently attended collaborative activity among public school teachers was collaboration with other teachers (69 percent). This activity was followed by networking with teachers outside their school (62 percent), a common planning period for team teachers (53 percent), and individual or collaborative research on a topic of professional interest (52 percent). Teachers were least likely to mentor another teacher in a formal relationship (26 percent) or to be mentored by another teacher (23 percent).
- Frequency of participation in a collaborative activity was generally positively related to teachers' beliefs about the extent to which the activity improved their classroom teaching. For example, teachers who engaged in regularly scheduled collaboration with other teachers at least once a week were more likely to believe that participation had improved their teaching a lot (45 percent), compared with teachers who participated two to three times a month (23 percent), once a month (15 percent), or a few times a year (7 percent).

Teachers' feelings of preparedness

Teachers in the 2000 survey reported the extent to which they felt prepared for the overall demands of their teaching assignments and for eight specific classroom activities. The survey data indicate that

- Sixty-one percent of public school teachers felt very well prepared to meet the overall demands of their teaching assignments. Thirty-five percent felt moderately well prepared, and 4 percent felt somewhat well prepared.
- Teachers most often reported feeling very well prepared to maintain order and discipline in the

classroom (71 percent). They were less likely to report feeling very well prepared to implement new methods of teaching (45 percent), implement state or district curriculum (44 percent), use student performance assessment (37 percent), address the needs of students from diverse cultural backgrounds (32 percent), and integrate educational technology into the grade or subject taught (27 percent).

- Among teachers who taught students with special needs, relatively few felt very well prepared to address those students' needs. Twenty-seven percent of teachers indicated that they felt very well prepared to address the needs of students with limited English proficiency, and 32 percent of the teachers who taught students with disabilities felt very well prepared to address those students' needs.
- The extent to which teachers felt very well prepared for most classroom activities varied with the amount of time spent in recent professional development in those activities. With two exceptions (classroom management and state or district curriculum and performance standards), teachers who spent over 8 hours in professional development on the activity were more likely than those who spent 1 to 8 hours or those who did not participate at all to indicate that they felt very well prepared for that activity.
- For three collaborative activities related to teaching—regularly scheduled collaboration with other teachers, networking with teachers outside the school, and mentoring another teacher in a formal relationship—teachers who participated in the activity were more likely than those who did not participate to report feeling very well prepared for the overall demands of their classroom assignments.

Selected comparisons with the 1998 survey

The 2000 survey was designed to provide trend data that would allow an examination of change since 1998 along two key dimensions—teacher participation in professional development and collaborative activities, and teachers' feelings of preparedness. For these analyses, a subset of teachers was selected from the 2000 survey that was similar to the teachers sampled for the 1998 survey—that is, regular full-time public school teachers in grades 1 through 12 whose main teaching assignment was in English, mathematics, social studies, foreign languages, or science, or who taught in a self-contained classroom. Findings from the 1998 and 2000 surveys indicate that

- The proportion of regular full-time public school teachers indicating that they participated in professional development was lower in 2000 than in 1998 for three of the seven content areas that were comparable across years—new methods of teaching (73 vs. 77 percent), student performance assessment (62 vs. 67 percent), and classroom management, including student discipline (43 vs. 49 percent).
- In 1998 and 2000, participation of regular full-time public school teachers in professional development was likely to be short term, typically lasting for 1 to 8 hours. This pattern held for every content area of professional development examined in the surveys except for programs on in-depth study in the subject area of the main teaching assignment, where participation typically lasted more than 8 hours.
- In 1998 and 2000, regular full-time public school teachers most often reported that they felt very well prepared to maintain order and discipline in the classroom (71 and 72 percent, respectively). In both years, teachers were least likely to report feeling very well prepared to integrate educational technology into the grade or subject taught (20 and 27 percent, respectively) and address the needs of students with disabilities (21 and 29 percent, respectively).
- For all but one classroom activity examined in the surveys, regular full-time public school teachers in 2000 were more likely than those in 1998 to report that they felt very well prepared. The exception was maintaining order and discipline in the classroom.

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Private School Universe Survey: 1999–2000

Stephen P. Broughman and Lenore A. Colaciello

This article was originally published as the Introduction and Selected Results of the Statistical Analysis Report of the same name. The universe data are from the NCES Private School Survey (PSS).

Introduction

This report on the private school universe presents data on schools with grades kindergarten through 12 by school size, school level, religious orientation, geographical region, community type, and program emphasis. The numbers of students and teachers are reported in the same categories. The number of students is also reported by race/ethnicity, gender, and grade level.

Tables in the complete report present data by three classification schemes: private school typology, religious orientation, and association membership. The private school nine-category typology is based on methodological work completed at the National Center for Education Statistics (NCES). Each of the primary divisions (Catholic, other religious, and nonsectarian) is subdivided into three additional categories: Catholic into parochial, diocesan, and private order;[1] other religious into conservative Christian, affiliated with a national denomination or other religious school association, and unaffiliated; and nonsectarian into regular program, special emphasis, and special education.

The Private School Survey (PSS), conducted biennially by the U.S. Bureau of the Census for NCES, is designed to collect data from all private schools in the 50 states and the District of Columbia. The PSS conducted in 1999–2000 is the data source for this report. The counts presented here are estimates derived from a collection of state and private school organization and association lists combined with an area frame. (An estimate of the undercount of schools using this methodology is given in the complete report.) Although, beginning in 1995, the PSS definition of a school was expanded to include those schools for which kindergarten was the highest grade, referred to as kindergarten-terminal (k-terminal) schools, all estimates presented in this report, unless otherwise stated, are for schools (traditional schools) meeting the more restrictive pre-1995 PSS definition of having at least one of grades 1 through 12.

Selected Results

Schools

In the fall of 1999, there were 27,223 private elementary and secondary schools in the United States, a total not statistically different from the 27,402 schools counted in the fall of 1997 (Broughman and Colaciello 1999). Among these schools there was considerable diversity as to orientation and affiliation. Of the three primary types of private schools—Catholic, other religious, and nonsectarian—other religious schools were the most numerous, followed by Catholic schools and then nonsectarian schools, representing 49, 30, and 22 percent of all private schools, respectively (table 1 and figure 1). Parochial schools were the most numerous type of Catholic schools, followed by diocesan and then private order schools. Among the three categories of other religious schools—conservative Christian, affiliated, and unaffiliated—there were fewer affiliated schools than conservative Christian or unaffiliated schools. Of the nonsectarian schools, regular schools were the most numerous, followed by special emphasis schools and then special education schools.

The region with the most private schools was the South (30 percent), while the region with the fewest was the West (20 percent). Ninety-one percent of private schools offered at least some elementary grades, with 61 percent offering elementary grades only and 30 percent offering a combination of elementary and secondary grades; the remaining 9 percent offered secondary grades only. Most private schools (82 percent) emphasized a regular elementary/secondary program. The other program emphasis categories—Montessori, special emphasis, special education, vocational/technical, alternative, and early childhood—each contained fewer than 10 percent of private schools.

Enrollment

A total of 5,162,684 students were enrolled in the nation's private schools in the fall of 1999, an increase over the 5,076,119 students enrolled in the fall of 1997 (Broughman and Colaciello 1999). Private school students represented approximately 10 percent of the total elementary and secondary enrollment in the United States.[2]

The distribution of enrollment by type of private school differed from the distribution of schools by the same dimension. More students were enrolled in Catholic schools

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[1] While the tables and figures use the term "private," "private order" is used in the text to avoid confusion with the general use of the term "private."

[2] Public school enrollment source is the Common Core of Data (CCD) "State Nonfiscal Survey of Public Elementary/Secondary Education: School Year 1999–2000."

Table 1.—Number and percentage distribution of private schools, students, and full-time-equivalent (FTE) teachers by NCES typology and selected characteristics: United States, 1999–2000

Selected characteristics	Schools		Students		FTE teachers	
	Number	Percent	Number	Percent	Number	Percent
Total	27,223	100.0	5,162,684	100.0	395,317	100.0
NCES typology						
Catholic	8,102	29.8	2,511,040	48.6	149,600	37.8
Parochial	4,607	16.9	1,307,461	25.3	72,497	18.3
Diocesan	2,598	9.5	835,327	16.2	49,415	12.5
Private	897	3.3	368,252	7.1	27,689	7.0
Other religious	13,232	48.6	1,843,580	35.7	152,915	38.7
Conservative Christian	4,989	18.3	773,237	15.0	60,481	15.3
Affiliated	3,531	13.0	553,530	10.7	47,433	12.0
Unaffiliated	4,712	17.3	516,813	10.0	45,001	11.4
Nonsectarian	5,889	21.6	808,063	15.7	92,801	23.5
Regular	2,494	9.2	546,649	10.6	58,279	14.7
Special emphasis	2,131	7.8	175,140	3.4	19,981	5.1
Special education	1,264	4.6	86,274	1.7	14,542	3.7
School level						
Elementary	16,530	60.7	2,831,372	54.8	187,833	47.5
Secondary	2,538	9.3	806,639	15.6	62,737	15.9
Combined	8,155	30.0	1,524,673	29.5	144,746	36.6
Program emphasis						
Regular elementary/secondary	22,263	81.8	4,751,634	92.0	346,300	87.6
Montessori	1,190	4.4	77,264	1.5	8,462	2.1
Special program emphasis	606	2.2	111,219	2.2	10,949	2.8
Special education	1,409	5.2	95,261	1.9	15,978	4.0
Vocational/technical	—	—	—	—	—	—
Alternative	1,617	5.9	120,233	2.3	13,000	3.3
Early childhood	133	0.5	5,534	0.1	532	0.1
Size						
Less than 50	7,565	27.8	196,309	3.8	26,329	6.7
50–149	7,738	28.4	716,129	13.9	71,676	18.1
150–299	6,571	24.1	1,424,018	27.6	102,457	25.9
300–499	3,219	11.8	1,228,631	23.8	84,086	21.3
500–749	1,352	5.0	805,490	15.6	54,078	13.7
750 or more	778	2.9	792,106	15.3	56,691	14.3
Region						
Northeast	6,452	23.7	1,294,847	25.1	103,805	26.3
Midwest	6,991	25.7	1,345,446	26.1	91,444	23.1
South	8,240	30.3	1,575,784	30.5	131,192	33.2
West	5,540	20.4	946,608	18.3	68,876	17.4
Community type						
Central city	10,825	39.8	2,540,516	49.2	189,984	48.1
Urban fringe/large town	10,359	38.1	2,051,094	39.7	155,436	39.3
Rural/small town	6,040	22.2	571,074	11.1	49,897	12.6

—Too few sample cases for a reliable estimate.

NOTE: Detail may not add to totals because of rounding or missing values in cells with too few sample cases.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Private School Survey (PSS), 1999–2000.

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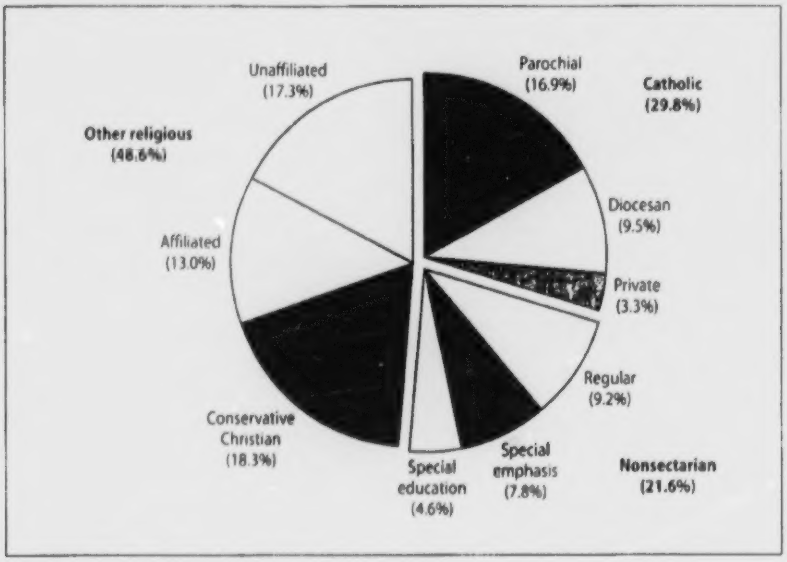
Figure 1.—Percentage distribution of private schools, by NCES typology



NOTE: Detail may not add to 100.0 percent because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Private School Survey (PSS), 1999–2000.

than in other religious schools, 49 and 36 percent of total private enrollment, respectively (table 1 and figure 2). Enrollment in nonsectarian schools, representing 16 percent of all private students, was less than that of Catholic or other religious schools. That Catholic schools represent approximately one-third of all private schools while containing almost half of private school students is an indication that the distribution of schools by size is not the same for the three types of schools. For example, the percentage of schools that are small (fewer than 50 students) is much greater for other religious (38 percent) and nonsectarian (40 percent) schools than for Catholic schools (2 percent). Among Catholic schools, more students were enrolled in parochial schools, followed by diocesan schools and then private order schools. Among the three categories of other religious schools, enrollment was greater in conservative Christian schools than in affiliated or unaffiliated schools. Of the nonsectarian schools, regular schools had more students, followed by special emphasis schools and then special education schools.

The region with the most private school students was the South (31 percent), while the region with the fewest was the West (18 percent). Approximately 55 percent of private school students were enrolled in elementary schools, 16 percent were enrolled in secondary schools, and 30 percent were enrolled in combined schools (table 1). Ninety-two percent of private school students were enrolled in schools with a regular elementary/secondary program emphasis, while fewer than 5 percent of private school students were enrolled in schools featuring any one of the other categories of program emphasis.

Approximately three-quarters (77 percent) of private school students were White, non-Hispanic; while 9 percent were Black, non-Hispanic; 8 percent were Hispanic; 4 percent were American Indian/Alaska Native; and 5 percent were Asian/Pacific Islander.[3] Almost half (49 percent) of all private school students attended schools that were located in urban areas (central city), and approximately 40 percent attended schools that were located in an urban fringe or a large town, while only 11 percent attended rural schools (table 1).

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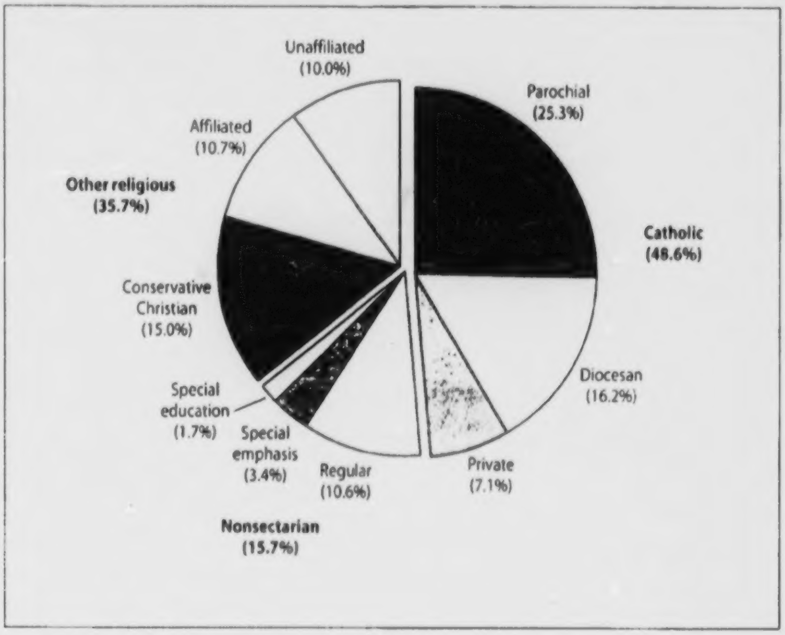
[3] For comparisons of the racial/ethnic composition of private school enrollment with that of public schools from the 1987–88, 1990–91, and 1993–94 Schools and Staffing Surveys, see McLaughlin, O'Donnell, and Ries (1995) and McLaughlin (1997).

Figure 2.—Percentage distribution of private school students, by NCES typology



NOTE: Detail may not add to 100.0 percent because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Private School Survey (PSS), 1999–2000.

Teachers

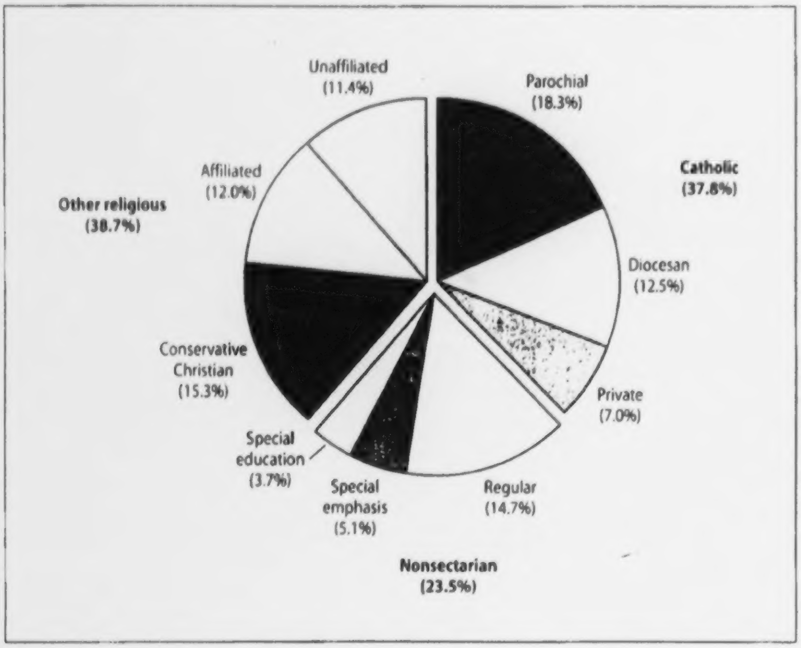
The nation's private school students were taught by 395,317 full-time-equivalent (FTE) teachers (table 1) in the fall of 1999, representing an increase over the 376,544 FTE teachers employed in private schools in the fall of 1997 (Broughman and Colaciello 1999). The distribution of FTE teachers by type of private school differed from those of schools and enrollment. Catholic schools (38 percent) and other religious schools (39 percent) employed approximately the same number of FTE teachers, while both employed more than nonsectarian schools (24 percent) (table 1 and figure 3). Among Catholic schools, more FTE teachers were teaching in parochial schools, followed by diocesan schools and then private order schools. Among the three categories of other religious schools, conservative Christian schools employed more teachers than affiliated or unaffiliated schools. Of the nonsectarian schools, more FTE teachers were employed by regular schools, followed by special emphasis schools and then special education schools.

The region with the most private school FTE teachers was the South (33 percent), while the region with the fewest was the West (17 percent). Nearly one-half of FTE teachers (48 percent) were teaching in elementary schools, approximately one-third (37 percent) in combined schools, and about 16 percent in secondary schools. Almost 88 percent of private school FTE teachers were teaching in schools with a regular elementary/secondary program emphasis. As in the case of students, fewer than 5 percent of private school FTE teachers were teaching in schools featuring any one of the other categories of program emphasis.

Kindergarten-terminal schools

Since 1995, schools for which kindergarten was the highest grade have been included in the PSS. In the fall of 1999, there were 5,772 of these schools enrolling 91,802 students

Figure 3.—Percentage distribution of private school full-time-equivalent (FTE) teachers, by NCES typology



NOTE: Detail may not add to 100.0 percent because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Private School Survey (PSS), 1999–2000.

and employing 13,081 FTE teachers nationwide. When the k-terminal schools are added to the traditional PSS schools, the total number of schools becomes 32,995, with 5,254,485 students and 408,397 FTE teachers. Almost 70 percent of the k-terminal schools were nonsectarian (68 percent), 30 percent were other religious, and 2 percent were Catholic.

By definition, all of these schools were classified as elementary, and most of them (97 percent) enrolled fewer than 50 students. Seventy-nine percent of these schools emphasized an early childhood program, 19 percent emphasized a Montessori program, and fewer than 5 percent each emphasized any one of the other program emphases.

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Data source: The NCES Private School Survey (PSS), 1999–2000.

For technical information, see the complete report:

Broughman, S.P., and Colaciello, L.A. (2001). *Private School Universe Survey: 1999–2000* (NCES 2001–330).

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Schools and Districts

Overview of Public Elementary and Secondary Schools and Districts: School Year 1999–2000

Lee M. Hoffman

This article was originally published as a Statistical Analysis Report. The universe data are primarily from the following two components of the NCES Common Core of Data (CCD): "Public Elementary/Secondary School Universe Survey" and "Local Education Agency Universe Survey." Technical notes, definitions, and supplemental tables from the original report have been omitted.

This report summarizes information about public elementary and secondary schools and local education agencies in the United States during the 1999–2000 school year. The information is provided by state education agencies through the Common Core of Data (CCD) survey system.

Types of Public Schools and Agencies

States reported over 92,000 public elementary/secondary schools in the 1999–2000 school year.[1] This was an increase of almost 7 percent over the more than 86,000 schools reported 5 years earlier, in the fall of 1994.[2] Most of these were regular schools, those that offer a comprehensive curriculum and may provide other programs and services as well. A smaller number of schools focused primarily on special education, vocational/technical education, or alternative programs. Students in these specialized schools were often enrolled in a regular school as well, and reported only with the membership of that regular school (table A).

Among the schools that reported students in membership, almost 94 percent were regular schools (table 1). The second largest category with student membership was that of alternative education schools (4 percent), followed by special education schools (about 2 percent). Note that roughly two-thirds of the vocational schools identified in table A, as well as smaller proportions of other types of schools, do not appear in table 1 because no students were reported in membership for these schools.

In the 1998–99 school year, the CCD began reporting schools operated by the U.S. Department of the Interior's Bureau of Indian Affairs (BIA) and the domestic Department of Defense Dependents Schools as separate entries, and they are not included in the U.S. totals shown in the tables in this report. Some, but not all, of these BIA and Department of Defense schools previously were included in the states within whose boundaries they were located.

Most local education agencies are those that are typically thought of as "school districts." Operated by a local school board, they provide instructional services for students and comprised almost 89 percent of local agencies in 1999–2000 (table 2). A smaller proportion, about 8 percent, were supervisory unions or regional education service agencies whose major responsibility is to offer administrative, special program, testing, or other services to school districts. Finally, around 4 percent of the reported agencies were operated directly by a state or federal government or were other than any of the preceding categories. The number of regular school districts increased by 1 percent from the 14,772 reported in 1994 to a total of 14,928 in 1999–2000.

The governance of charter schools varies from state to state. In some cases, they are not considered under the administration of the regular public school district within whose boundaries they operate and are reported on the CCD with

Table A.—Public elementary and secondary schools in the United States: 1999–2000

	Total	Regular	Special	Vocational	Alternative
Total schools in United States	92,012	84,902	1,947	1,048	4,115
Reporting students	89,599	84,073	1,596	342	3,588
Not reporting students	2,413	829	351	706	527

NOTE: Totals include the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000.

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[1] Although the outlying areas, Bureau of Indian Affairs, and Department of Defense Dependents Schools (DoDDS) are included in the tables, national totals are limited to the 50 states and the District of Columbia.

[2] All comparisons with 1994 are based on table 90 in the *Digest of Education Statistics: 1999* (Snyder and Hoffman 2000).

Table 1.—Number of public elementary and secondary schools with membership and percentage of students in membership, by type of school and by state: School year 1999–2000

State	Number of schools having membership	Total students	Type of school: Regular: Number of schools	Regular: Percentage of students	Special education: Number of schools	Special education: Percentage of students	Vocational education: Number of schools	Vocational education: Percentage of students	Alternative education: Number of schools	Alternative education: Percentage of students
United States	89,599	46,857,321	84,073	98.2	1,596	0.4	342	0.4	3,588	1.0
Alabama	1,367	740,732	1,321	99.7	16	0.1	2	0.0	28	0.2
Alaska	497	134,391	474	98.2	1	0.2	1	0.0	21	1.7
Arizona	1,552	852,612	1,463	97.4	10	0.0	9	0.7	70	1.8
Arkansas	1,119	451,034	1,115	99.9	0	0.0	1	0.1	3	0.0
California	8,566	6,038,589	7,414	96.6	124	0.5	0	0.0	1,028	2.9
Colorado	1,561	708,109	1,479	98.7	10	0.1	3	0.1	69	1.2
Connecticut	1,073	553,993	988	96.5	24	0.6	17	1.9	44	1.0
Delaware	185	112,836	160	92.8	16	1.4	5	4.7	4	1.0
District of Columbia	189	77,194	173	95.4	10	3.4	0	0.0	6	1.2
Florida	3,131	2,381,396	2,850	98.5	128	0.7	29	0.1	124	0.7
Georgia	1,887	1,422,762	1,863	99.7	1	0.0	0	0.0	23	0.2
Hawaii	255	185,860	251	99.9	3	0.0	0	0.0	1	0.1
Idaho	658	245,331	588	98.2	12	0.1	0	0.0	58	1.7
Illinois	4,290	2,027,600	3,909	97.8	259	1.3	0	0.0	122	0.9
Indiana	1,874	988,702	1,819	99.6	8	0.1	1	0.0	46	0.4
Iowa	1,531	497,301	1,483	98.8	10	0.2	0	0.0	38	1.0
Kansas	1,440	472,188	1,435	99.9	5	0.1	0	0.0	0	0.0
Kentucky	1,364	648,180	1,298	99.5	9	0.1	1	0.0	56	0.4
Louisiana	1,513	756,579	1,390	98.1	29	0.2	5	0.1	89	1.5
Maine	691	209,253	688	100.0	3	0.0	0	0.0	0	0.0
Maryland	1,337	846,582	1,234	97.4	51	0.9	12	1.1	40	0.6
Massachusetts	1,898	971,425	1,821	96.1	1	0.0	42	3.3	34	0.5
Michigan	3,606	1,725,617	3,538	99.8	15	0.0	3	0.0	50	0.2
Minnesota	2,072	854,034	1,692	97.4	166	1.1	0	0.0	214	1.5
Mississippi	875	500,716	875	100.0	0	0.0	0	0.0	0	0.0
Missouri	2,258	914,110	2,136	98.8	56	0.7	6	0.2	60	0.2
Montana	882	157,556	875	99.9	2	0.0	0	0.0	5	0.1
Nebraska	1,312	288,261	1,255	99.4	57	0.6	0	0.0	0	0.0
Nevada	484	325,610	442	98.4	14	0.3	1	0.5	27	0.8
New Hampshire	521	206,783	521	100.0	0	0.0	0	0.0	0	0.0
New Jersey	2,383	1,289,256	2,250	97.9	85	0.7	48	1.4	0	0.0
New Mexico	755	324,495	701	97.8	17	0.7	0	0.0	37	1.5
New York	4,273	2,887,776	4,137	97.7	28	0.1	25	1.2	83	1.1
North Carolina	2,148	1,275,925	2,065	99.2	25	0.4	3	0.0	55	0.4
North Dakota	550	112,751	550	100.0	0	0.0	0	0.0	0	0.0
Ohio	3,798	1,836,554	3,673	96.7	25	0.1	72	3.0	28	0.2
Oklahoma	1,809	627,032	1,797	99.7	12	0.3	0	0.0	0	0.0
Oregon	1,277	545,033	1,174	97.9	16	0.3	0	0.0	87	1.8
Pennsylvania	3,164	1,816,716	3,125	98.4	12	1.0	14	0.6	13	0.1
Rhode Island	318	156,454	304	98.2	4	0.4	4	0.7	6	0.7
South Carolina	1,043	666,780	1,038	99.9	5	0.1	0	0.0	0	0.0
South Dakota	759	131,037	735	98.9	3	0.1	0	0.0	21	1.0
Tennessee	1,554	916,202	1,518	99.5	18	0.2	6	0.3	12	0.1
Texas	7,395	3,991,783	6,660	98.8	140	0.1	21	0.1	574	1.0
Utah	788	480,255	710	97.9	21	0.5	0	0.0	57	1.6
Vermont	359	104,559	320	98.5	38	1.4	0	0.0	1	0.0
Virginia	1,816	1,133,994	1,763	99.4	18	0.1	0	0.0	35	0.4
Washington	2,111	1,003,714	1,817	96.8	69	0.2	7	0.1	218	2.9
West Virginia	808	291,811	778	99.4	7	0.2	3	0.0	20	0.4
Wisconsin	2,118	877,753	2,041	99.3	9	0.1	1	0.0	67	0.7
Wyoming	385	92,105	367	98.7	4	0.2	0	0.0	14	1.0
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs										
DoDDS: DOD Overseas	153	73,504	153	100.0	0	0.0	0	0.0	0	0.0
DDESS: DOD Domestic	71	34,081	71	100.0	0	0.0	0	0.0	0	0.0
Bureau of Indian Affairs	188	49,076	188	100.0	0	0.0	0	0.0	0	0.0
American Samoa	31	15,477	29	97.9	1	0.3	1	1.9	0	0.0
Guam	38	32,951	38	100.0	0	0.0	0	0.0	0	0.0
Northern Marianas	25	9,732	25	100.0	0	0.0	0	0.0	0	0.0
Puerto Rico	1,523	613,019	1,465	96.2	28	1.7	12	0.9	18	1.2
Virgin Islands	35	20,866	33	99.4	0	0.0	0	0.0	2	0.6

NOTE: Table excludes 2,427 schools (14 of these in outlying areas) for which no students were reported in membership. U.S. totals include the 50 states and the District of Columbia. Although type of school is a mutually exclusive category, many regular schools include special, vocational, or alternative education programs. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0. Total student membership is reported from the "State Nonfiscal Survey of Public Elementary/Secondary Education."

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000, and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1999–2000.

Table 2.—Number and percentage of public elementary and secondary education agencies, by type of agency and by state: School year 1999–2000

State	Total agencies	Regular school districts		Regional education service agencies and supervisory union administrative centers		State-operated agencies		Federally operated and other agencies*	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
United States	16,793	14,928	88.9	1,273	7.6	137	0.8	455	2.7
Alabama	131	128	97.7	0	0.0	3	2.3	0	0.0
Alaska	55	53	96.4	0	0.0	2	3.6	0	0.0
Arizona	422	413	97.9	6	1.4	2	0.5	1	0.2
Arkansas	328	310	94.5	15	4.6	3	0.9	0	0.0
California	1,057	987	93.4	58	5.5	12	1.1	0	0.0
Colorado	198	176	88.9	22	11.1	0	0.0	0	0.0
Connecticut	195	166	85.1	6	3.1	4	2.1	19	9.7
Delaware	28	19	67.9	0	0.0	3	10.7	6	21.4
District of Columbia	28	1	3.6	0	0.0	0	0.0	27	96.4
Florida	73	67	91.8	0	0.0	1	1.4	5	6.8
Georgia	180	180	100.0	0	0.0	0	0.0	0	0.0
Hawaii	1	1	100.0	0	0.0	0	0.0	0	0.0
Idaho	114	113	99.1	0	0.0	1	0.9	0	0.0
Illinois	1,055	896	84.9	154	14.6	5	0.5	0	0.0
Indiana	328	295	89.9	29	8.8	3	0.9	1	0.3
Iowa	405	375	92.6	15	3.7	15	3.7	0	0.0
Kansas	304	304	100.0	0	0.0	0	0.0	0	0.0
Kentucky	176	176	100.0	0	0.0	0	0.0	0	0.0
Louisiana	82	75	91.5	0	0.0	7	8.5	0	0.0
Maine	326	283	86.8	39	12.0	4	1.2	0	0.0
Maryland	24	24	100.0	0	0.0	0	0.0	0	0.0
Massachusetts	477	351	73.6	85	17.8	1	0.2	40	8.4
Michigan	799	737	92.2	57	7.1	4	0.5	1	0.1
Minnesota	468	407	87.0	57	12.2	4	0.9	0	0.0
Mississippi	162	152	93.8	0	0.0	10	6.2	0	0.0
Missouri	531	525	98.9	0	0.0	2	0.4	4	0.8
Montana	534	455	85.2	77	14.4	2	0.4	0	0.0
Nebraska	709	593	83.6	111	15.7	5	0.7	0	0.0
Nevada	18	17	94.4	0	0.0	1	5.6	0	0.0
New Hampshire	257	179	69.6	78	30.4	0	0.0	0	0.0
New Jersey	662	604	91.2	12	1.8	0	0.0	46	6.9
New Mexico	89	89	100.0	0	0.0	0	0.0	0	0.0
New York	745	707	94.9	38	5.1	0	0.0	0	0.0
North Carolina	201	120	59.7	0	0.0	2	1.0	79	39.3
North Dakota	272	231	84.9	38	14.0	3	1.1	0	0.0
Ohio	806	708	87.8	73	9.1	3	0.4	22	2.7
Oklahoma	556	544	97.8	0	0.0	0	0.0	12	2.2
Oregon	221	197	89.1	21	9.5	2	0.9	1	0.5
Pennsylvania	666	501	75.2	101	15.2	15	2.3	49	7.4
Rhode Island	37	36	97.3	0	0.0	1	2.7	0	0.0
South Carolina	104	90	86.5	14	13.5	0	0.0	0	0.0
South Dakota	199	176	88.4	18	9.0	5	2.5	0	0.0
Tennessee	139	139	100.0	0	0.0	0	0.0	0	0.0
Texas	1,203	1,041	86.5	20	1.7	0	0.0	142	11.8
Utah	47	40	85.1	5	10.6	2	4.3	0	0.0
Vermont	348	287	82.5	60	17.2	1	0.3	0	0.0
Virginia	169	135	79.9	34	20.1	0	0.0	0	0.0
Washington	305	296	97.0	9	3.0	0	0.0	0	0.0
West Virginia	57	55	96.5	0	0.0	2	3.5	0	0.0
Wisconsin	445	426	95.7	16	3.6	3	0.7	0	0.0
Wyoming	57	48	84.2	5	8.8	4	7.0	0	0.0
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs									
DoDDS: DOD Overseas	11	0	0.0	0	0.0	0	0.0	11	100.0
DDESS: DOD Domestic	17	0	0.0	0	0.0	0	0.0	17	100.0
Bureau of Indian Affairs	24	0	0.0	0	0.0	0	0.0	24	100.0
American Samoa	1	1	100.0	0	0.0	0	0.0	0	0.0
Guam	1	1	100.0	0	0.0	0	0.0	0	0.0
Northern Marianas	1	1	100.0	0	0.0	0	0.0	0	0.0
Puerto Rico	1	1	100.0	0	0.0	0	0.0	0	0.0
Virgin Islands	1	1	100.0	0	0.0	0	0.0	0	0.0

*States may report charter schools under the category of other agencies. For example, the District of Columbia reports each charter school as a separate agency.

NOTE: Regular school districts include those that are components of supervisory unions. Percentages may not add to 100 because of rounding. U.S. totals include the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1999–2000.

a separate education agency for each charter school. When this occurs, the districts are reported under the category of "other education agency." For example, although not all states designate a separate agency for each charter school, in the District of Columbia the establishment of 27 charter schools explains why the District is shown with 28 local education agencies in table 2.

Student Membership

In the 1999–2000 school year, 89,599 public schools provided instruction to 46.9 million students in the United States (table 1), an increase of less than 1 percent over the 46.5 million students in 1998 (Hoffman 2000, table 1). Five states (California, Florida, Illinois, New York, and Texas) enrolled more than 2 million students in their public schools. At the other end of the size distribution, the District of Columbia and Wyoming reported fewer than 100,000 students.

Most of the 1999–2000 students, 98 percent, were reported enrolled in regular schools. Some 1 percent were in alternative schools, and special education or vocational schools each accounted for less than 1 percent of students. Mississippi, New Hampshire, and North Dakota operated only regular schools.

Instructional Level

Schools come in all combinations of grades. To allow comparisons across states, instructional level is determined in this report by the lowest and highest grade in a school. Among the 89,599 schools with membership during the 1999–2000 school year, 58 percent spanned the primary grades, beginning with prekindergarten or kindergarten and going no higher than grade 8 (table 3). Middle schools, those with grade spans ranging from as low as grade 4 to as high as grade 9, made up almost 18 percent of schools with students. High schools (low grade of 7 or higher, high grade of 12) were another 19 percent of schools. Some 5 percent of schools had a grade configuration that did not fit into any of these three categories.

A total of 14,571 regular school districts reported students in membership for 1999–2000 (table 4). As with schools, grade span categories were assigned by the lowest and highest grades offered. Approximately 73 percent of school districts included the range of grades from prekindergarten or kindergarten to 9 or higher, and they accounted for 92 percent of all public school students. (In fact, only in Arizona, Illinois, Montana, and Vermont did as many as one-third of the students attend school districts with other grade spans.) A little less than 6 percent of students were in districts going no higher than grade 8, and about 2 percent were in secondary districts with no grade lower than 7. Less than 1 percent of students were enrolled in districts with some other range of grades.

School and School District Size

Primary schools tended to be smaller than middle and high schools (table 5). The average number of students in a primary school was 446 in 1999–2000. Middle schools served, on the average, 595 students each, while the average-sized high school had 752 students. There was considerable range in school size across the states. High schools ranged from an average of fewer than 300 students in Montana, North Dakota, and South Dakota to 1,400 students or more in Florida and Hawaii.

Student/teacher ratios were higher in primary schools, which had a median number of 16.2 students for each teacher, than in high schools, with a median number of 14.8 students per teacher (table 6). (The median is the point at which one-half of the schools had larger student/teacher ratios and one-half had smaller. Note also that student/teacher ratio is not the same as average class size, which includes only teachers who are assigned to a classroom.) The median number of primary students for each teacher ranged from a low of fewer than 13 in Nebraska, South Dakota, Vermont, and Wyoming to a high of more than 20 in Kentucky and Utah.

Twenty-five school districts enrolled 100,000 or more students, while 1,809 districts served fewer than 150 students (table 7). While few in number, the larger districts included a considerable portion of the students in America's schools. Although under 2 percent of school districts reported 25,000 or more students, almost one-third (32 percent) of students attended school in these districts. At the other end of the size range, more than one-third of school districts had fewer than 600 students, but these districts accounted for only 3 percent of public school enrollment.

Other School Characteristics

The majority of schools, 57 percent, were in large or midsize cities or their accompanying urban fringe areas (table 8). These schools accounted for more than two-thirds (69 percent) of all public school students. About one of every six students was in a large city school in 1999–2000; a smaller proportion, about 1 in 10, attended a rural school that was not within the fringes of an urban area.

Table 3.—Percentage of public elementary and secondary schools and percentage of students in membership, by instructional level and by state: School year 1999–2000

State	Number of schools having membership	Percentage by instructional level							
		Primary		Middle		High		Other	
		Schools	Students	Schools	Students	Schools	Students	Schools	Students
United States	89,599	58.0	49.6	17.5	19.9	19.2	27.7	5.3	2.8
Alabama	1,367	51.2	44.7	17.2	17.7	19.7	25.1	11.9	12.4
Alaska	497	36.6	43.9	6.8	12.8	14.7	25.0	41.9	18.3
Arizona	1,552	59.1	55.2	14.8	16.9	18.3	25.4	7.8	2.5
Arkansas	1,119	51.3	46.4	16.8	20.0	29.2	29.3	2.7	4.4
California	8,566	62.1	51.9	14.8	18.4	18.9	27.2	4.1	2.5
Colorado	1,561	58.3	49.6	17.9	20.6	19.7	27.3	4.1	2.4
Connecticut	1,073	61.6	50.8	17.6	20.9	16.6	27.1	4.2	1.2
Delaware	185	49.7	42.3	23.2	27.6	17.3	28.2	9.7	1.9
District of Columbia	189	63.0	63.5	12.2	13.1	16.4	18.9	8.5	4.5
Florida	3,131	53.7	49.0	15.7	21.3	13.4	25.6	17.2	4.1
Georgia	1,887	62.0	50.8	18.9	20.8	15.6	25.0	3.5	3.4
Hawaii	255	68.6	54.3	12.9	14.8	14.1	28.4	4.3	2.5
Idaho	658	51.8	47.5	17.0	21.6	25.8	28.5	5.3	2.5
Illinois	4,290	61.5	55.7	17.0	15.7	17.8	26.9	3.7	1.7
Indiana	1,874	61.5	49.7	17.4	18.9	18.8	30.2	2.2	1.2
Iowa	1,531	53.7	45.9	19.5	19.8	24.2	32.1	2.6	2.2
Kansas	1,440	57.3	48.9	17.4	19.7	24.9	31.0	0.5	0.4
Kentucky	1,364	57.5	49.5	16.9	20.1	21.7	29.6	4.0	0.8
Louisiana	1,513	52.9	48.0	19.4	20.0	16.6	25.7	11.1	6.3
Maine	691	63.7	47.1	18.1	22.3	15.6	29.0	2.6	1.7
Maryland	1,337	64.5	50.3	17.8	21.1	15.0	27.4	2.7	1.1
Massachusetts	1,898	64.5	50.2	17.1	20.3	16.0	27.2	2.4	2.3
Michigan	3,606	58.8	48.0	17.7	21.0	19.6	28.5	3.9	2.5
Minnesota	2,072	49.6	46.2	14.6	19.5	28.6	32.5	7.3	1.8
Mississippi	875	49.8	45.0	19.7	19.4	20.8	25.4	9.7	10.1
Missouri	2,258	54.7	48.6	16.4	19.6	22.2	29.5	6.7	2.3
Montana	882	53.1	47.4	26.8	20.2	20.0	31.3	0.2	1.2
Nebraska	1,312	67.8	50.5	8.1	14.8	23.1	34.2	1.1	0.6
Nevada	484	62.2	51.9	14.9	21.2	19.2	24.0	3.7	2.9
New Hampshire	521	67.0	47.4	18.0	24.0	15.0	28.5	0.0	0.0
New Jersey	2,383	62.7	52.0	18.0	19.5	13.2	25.7	6.2	2.9
New Mexico	755	57.7	47.6	20.8	22.5	18.9	28.1	2.5	1.9
New York	4,273	57.9	49.4	17.0	19.1	18.1	27.0	6.9	4.5
North Carolina	2,148	59.4	50.3	20.4	22.1	15.7	26.0	4.5	1.6
North Dakota	550	58.4	49.1	6.5	12.8	34.4	36.0	0.7	2.1
Ohio	3,798	58.2	46.5	19.8	20.6	20.2	31.9	1.8	1.0
Oklahoma	1,809	54.3	51.7	19.0	20.3	25.4	25.8	1.2	2.1
Oregon	1,277	59.2	47.3	17.1	20.8	18.8	29.7	4.9	2.1
Pennsylvania	3,164	61.1	46.7	17.8	20.7	18.9	30.0	2.1	2.6
Rhode Island	318	67.0	49.4	17.3	22.5	14.2	27.9	1.6	0.2
South Carolina	1,043	56.8	48.5	23.8	23.4	18.0	27.2	1.4	1.0
South Dakota	759	50.9	47.2	23.5	21.2	23.6	31.1	2.1	0.5
Tennessee	1,554	60.2	51.7	16.9	17.6	18.5	27.8	4.4	2.9
Texas	7,395	50.3	48.1	20.6	22.8	19.4	25.7	9.7	3.4
Utah	788	59.3	51.0	16.4	21.0	19.4	25.6	4.9	2.4
Vermont	359	74.1	52.4	7.2	9.5	13.6	31.6	5.0	6.5
Virginia	1,816	62.8	48.8	18.3	21.3	16.8	29.0	2.1	0.9
Washington	2,111	55.0	48.2	16.5	20.2	20.7	28.2	7.8	3.5
West Virginia	808	64.4	49.3	16.5	20.4	15.0	28.0	4.2	2.3
Wisconsin	2,118	57.8	47.0	17.7	19.5	21.7	31.5	2.8	2.0
Wyoming	385	58.4	46.5	19.2	22.6	18.7	28.8	3.6	2.1
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs									
DoDDS: DOD Overseas	153	56.2	58.5	12.4	12.0	24.2	22.9	7.2	6.5
DDESS: DOD Domestic	71	70.4	69.9	16.9	17.2	7.0	7.7	5.6	5.2
Bureau of Indian Affairs	188	55.9	50.4	2.1	1.8	13.3	14.6	28.7	33.2
American Samoa	31	74.2	72.0	3.2	4.9	19.4	22.8	3.2	0.3
Guam	38	71.1	50.6	18.4	22.6	10.5	26.8	0.0	0.0
Northern Marianas	25	84.0	62.6	4.0	13.0	12.0	24.4	0.0	0.0
Puerto Rico	1,523	58.4	45.5	14.8	17.1	12.0	20.5	14.8	16.9
Virgin Islands	35	65.7	53.2	20.0	17.0	11.4	28.4	2.9	1.4

NOTE: Instructional levels are primary (low grade prekindergarten to 3, high grade up to 8); middle (low grade 4 to 7, high grade 4 to 9); high (low grade 7 to 12, high grade 12 only); other (any configuration not falling within the previous three, including ungraded schools). For states that did not provide a grade span, grade span was determined by the highest and lowest grades in which students were reported. Table excludes 2,427 schools (14 in outlying areas) for which no students were reported in membership. U.S. totals include the 50 states and the District of Columbia. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000.

Table 4.—Number of regular public school districts providing instruction and percentage of students in membership, by grade span and by state: School year 1999–2000

		Grade span							
		PK, K, 1 to 8 or below		PK, K, 1 to 9–12		7, 8, 9 to 7–12		Other	
State	Total districts	Number of districts	Percentage of students	Number of districts	Percentage of students	Number of districts	Percentage of students	Number of districts	Percentage of students
United States	14,571	3,189	5.5	10,672	92.1	557	2.2	153	0.1
Alabama	128	0	0.0	128	100.0	0	0.0	0	0.0
Alaska	53	0	0.0	53	100.0	0	0.0	0	0.0
Arizona	360	175	27.1	115	62.9	51	9.5	19	0.5
Arkansas	310	0	0.0	310	100.0	0	0.0	0	0.0
California	987	558	18.9	338	72.1	88	8.8	3	0.2
Colorado	176	0	0.0	176	100.0	0	0.0	0	0.0
Connecticut	166	46	4.9	112	93.6	8	1.5	0	0.0
Delaware	19	0	0.0	15	94.3	4	5.7	0	0.0
District of Columbia	1	0	0.0	1	100.0	0	0.0	0	0.0
Florida	67	0	0.0	67	100.0	0	0.0	0	0.0
Georgia	180	7	0.2	173	99.8	0	0.0	0	0.0
Hawaii	1	0	0.0	1	100.0	0	0.0	0	0.0
Idaho	113	5	0.1	108	99.9	0	0.0	0	0.0
Illinois	896	386	25.4	410	63.8	100	10.8	0	0.0
Indiana	292	1	0.0	291	100.0	0	0.0	0	0.0
Iowa	375	0	0.0	375	100.0	0	0.0	0	0.0
Kansas	304	0	0.0	304	100.0	0	0.0	0	0.0
Kentucky	176	5	0.3	170	99.5	0	0.0	1	0.2
Louisiana	75	3	0.1	68	99.8	4	0.1	0	0.0
Maine	281	107	16.2	111	81.3	6	1.3	57	1.2
Maryland	24	0	0.0	24	100.0	0	0.0	0	0.0
Massachusetts	245	67	5.1	177	94.9	1	0.1	0	0.0
Michigan	721	138	2.0	548	97.6	21	0.2	14	0.2
Minnesota	400	35	0.7	337	98.8	17	0.2	11	0.2
Mississippi	152	1	0.1	149	99.8	2	0.2	0	0.0
Missouri	523	73	1.3	450	98.7	0	0.0	0	0.0
Montana	452	287	59.9	55	12.3	110	27.8	0	0.0
Nebraska	571	292	3.4	261	95.4	18	1.3	0	0.0
Nevada	17	1	0.0	16	100.0	0	0.0	0	0.0
New Hampshire	165	89	19.9	65	73.9	9	4.3	2	1.9
New Jersey	581	289	18.7	216	73.1	49	6.7	27	1.6
New Mexico	89	0	0.0	89	100.0	0	0.0	0	0.0
New York	704	44	1.1	641	98.2	11	0.7	8	0.1
North Carolina	120	1	0.0	118	100.0	0	0.0	1	0.0
North Dakota	229	50	2.6	171	96.3	6	0.6	2	0.6
Ohio	658	32	0.3	613	99.5	9	0.1	4	0.0
Oklahoma	544	114	3.6	429	96.4	0	0.0	1	0.0
Oregon	197	18	0.1	178	99.9	1	0.0	0	0.0
Pennsylvania	500	2	0.1	498	99.9	0	0.0	0	0.0
Rhode Island	36	4	1.5	31	97.5	0	0.0	1	1.0
South Carolina	86	0	0.0	86	100.0	0	0.0	0	0.0
South Dakota	173	3	0.8	170	99.2	0	0.0	0	0.0
Tennessee	138	12	1.9	126	98.1	0	0.0	0	0.0
Texas	1,041	64	0.2	976	99.7	0	0.0	1	0.1
Utah	40	0	0.0	40	100.0	0	0.0	0	0.0
Vermont	248	182	42.6	35	32.0	31	25.4	0	0.0
Virginia	132	0	0.0	132	100.0	0	0.0	0	0.0
Washington	296	49	1.0	246	99.0	0	0.0	1	0.0
West Virginia	55	0	0.0	55	100.0	0	0.0	0	0.0
Wisconsin	426	47	2.7	368	96.0	11	1.3	0	0.0
Wyoming	48	2	0.6	46	99.4	0	0.0	0	0.0
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs*									
DoDDS: DOD Overseas	11	0	0.0	11	100.0	0	0.0	0	0.0
DDESS: DOD Domestic	17	9	29.9	8	70.1	0	0.0	0	0.0
Bureau of Indian Affairs	24	0	0.0	24	100.0	0	0.0	0	0.0
American Samoa	1	0	0.0	1	100.0	0	0.0	0	0.0
Guam	1	0	0.0	1	100.0	0	0.0	0	0.0
Northern Marianas	1	0	0.0	1	100.0	0	0.0	0	0.0
Puerto Rico	1	0	0.0	1	100.0	0	0.0	0	0.0
Virgin Islands	1	0	0.0	1	100.0	0	0.0	0	0.0

*Table includes 28 Department of Defense and 24 Bureau of Indian Affairs school districts that are technically federally operated agencies; this is in order to report data for these agencies in the table.

NOTE: For states that did not provide a grade span, grade span was determined by the highest and lowest grades served among all schools associated with the district. "Other" includes all grade configurations not reported in the specified categories and includes ungraded districts. Table excludes 357 regular school districts for which no students were reported in membership. U.S. totals include the 50 states and the District of Columbia. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000, and "Local Education Agency Universe Survey," 1999–2000.

Table 5.—Average public school size (mean number of students per school), by instructional level and by state: School year 1999–2000

State	Schools having membership	Instructional level			
		Primary	Middle	High	Other
United States	89,599	446	595	752	273
Alabama	1,367	467	551	682	554
Alaska	497	324	505	461	118
Arizona	1,552	515	625	766	169
Arkansas	1,119	364	480	404	657
California	8,566	581	862	999	423
Colorado	1,561	386	524	629	264
Connecticut	1,073	426	613	843	146
Delaware	185	519	724	993	122
District of Columbia	189	412	441	470	216
Florida	3,131	694	1,030	1,460	180
Georgia	1,887	618	830	1,205	735
Hawaii	255	576	836	1,468	416
Idaho	658	341	473	410	173
Illinois	4,290	428	435	713	224
Indiana	1,874	426	570	848	283
Iowa	1,531	277	330	428	263
Kansas	1,440	276	367	403	233
Kentucky	1,364	398	550	637	87
Louisiana	1,513	454	513	774	284
Maine	691	224	373	561	196
Maryland	1,337	493	752	1,161	261
Massachusetts	1,898	398	608	874	492
Michigan	3,606	378	551	714	211
Minnesota	2,072	384	552	469	100
Mississippi	875	517	566	700	595
Missouri	2,258	360	483	537	141
Montana	882	160	136	281	921
Nebraska	1,312	164	401	325	113
Nevada	484	567	957	839	465
New Hampshire	521	281	529	757	0
New Jersey	2,383	448	588	1,053	252
New Mexico	755	354	464	637	321
New York	4,273	576	758	1,005	440
North Carolina	2,148	503	644	984	214
North Dakota	550	173	401	215	586
Ohio	3,798	397	518	781	272
Oklahoma	1,809	330	371	352	605
Oregon	1,277	345	521	722	145
Pennsylvania	3,164	439	666	911	698
Rhode Island	318	363	641	969	68
South Carolina	1,043	546	628	963	459
South Dakota	759	160	156	227	43
Tennessee	1,554	497	600	868	374
Texas	7,395	516	596	715	191
Utah	788	523	780	801	291
Vermont	359	206	382	675	377
Virginia	1,816	484	728	1,076	276
Washington	2,111	416	579	647	210
West Virginia	808	277	448	676	194
Wisconsin	2,118	337	458	601	297
Wyoming	385	191	282	369	140
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs					
DoDDS: DOD Overseas	153	500	466	455	438
DDESS: DOD Domestic	71	476	489	522	447
Bureau of Indian Affairs	188	235	219	285	301
American Samoa	31	484	760	589	43
Guam	38	616	1,062	2,200	0
Northern Marianas	25	274	1,197	746	0
Puerto Rico	1,523	314	464	686	458
Virgin Islands	35	483	508	1,481	283

NOTE: Instructional levels are primary (low grade prekindergarten to 3, high grade up to 8); middle (low grade 4 to 7, high grade 4 to 9); high (low grade 7 to 12, high grade 12 only); other (any configuration not falling within the previous three, including ungraded schools). For states that did not provide a grade span, grade span was determined by the highest and lowest grades in which students were reported. U.S. totals include the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000.

Table 6.—Median public school student/teacher ratio, by instructional level and by state: School year 1999–2000

State	Instructional level			
	Primary	Middle	High	Other
Reporting states	16.2	15.5	14.8	9.7
Alabama	14.8	17.0	15.7	15.3
Alaska	17.1	16.5	16.3	12.0
Arizona	17.8	18.2	16.9	—
Arkansas	15.2	14.4	12.2	14.8
California	19.9	22.8	21.8	17.7
Colorado	17.3	16.6	15.2	13.1
Connecticut	14.8	12.9	12.9	8.4
Delaware	16.6	16.4	15.4	4.8
District of Columbia	13.9	13.4	11.7	5.5
Florida	17.2	19.2	18.9	4.3
Georgia	15.7	15.6	16.9	15.2
Hawaii	17.5	17.0	17.5	14.1
Idaho	18.1	17.7	14.7	11.0
Illinois	17.1	15.7	14.6	7.9
Indiana	17.9	17.0	17.2	11.0
Iowa	14.7	13.5	12.9	11.7
Kansas	14.2	13.9	12.2	4.1
Kentucky	21.6	15.7	15.7	7.4
Louisiana	15.1	15.4	15.7	13.3
Maine	13.7	14.7	14.2	9.6
Maryland	17.5	15.9	17.2	6.0
Massachusetts	—	—	—	—
Michigan	18.2	17.5	18.4	13.7
Minnesota	14.8	15.7	14.9	5.0
Mississippi	17.1	16.5	16.6	15.9
Missouri	14.4	15.1	13.7	8.1
Montana	13.8	13.7	12.2	—
Nebraska	12.4	13.9	12.1	8.6
Nevada	17.5	20.8	17.6	7.0
New Hampshire	15.2	14.7	13.6	—
New Jersey	15.4	13.4	13.0	8.3
New Mexico	15.2	15.2	15.9	16.3
New York	15.6	14.6	14.5	10.7
North Carolina	15.3	14.3	14.4	6.4
North Dakota	13.0	14.6	12.7	16.0
Ohio	17.8	16.0	17.0	10.1
Oklahoma	15.6	15.2	12.6	16.9
Oregon	19.8	19.5	18.6	11.5
Pennsylvania	17.5	16.1	15.7	13.2
Rhode Island	15.4	13.2	13.7	5.3
South Carolina	14.9	15.5	15.0	12.2
South Dakota	12.6	13.1	11.7	9.0
Tennessee	—	—	—	—
Texas	15.2	14.2	12.4	9.0
Utah	20.8	19.9	19.7	12.7
Vermont	12.7	13.0	11.6	12.2
Virginia	—	—	—	—
Washington	19.4	20.1	19.9	7.0
West Virginia	14.1	14.3	15.4	8.2
Wisconsin	15.2	14.7	14.8	13.8
Wyoming	12.9	13.4	12.1	6.6
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs				
DoDDS: DOD Overseas	15.7	15.1	12.9	11.7
DDESS: DOD Domestic	15.0	13.6	12.7	12.4
Bureau of Indian Affairs	—	—	—	—
American Samoa	19.1	29.2	16.6	2.9
Guam	17.3	17.5	21.4	—
Northern Marianas	18.6	21.4	13.5	—
Puerto Rico	13.8	15.1	17.5	14.0
Virgin Islands	14.7	11.6	15.2	7.6

—Data are missing, except for Arizona, New Hampshire, Guam, and the Northern Marianas, which have no schools in the "other" category.

NOTE: Instructional levels are primary (low grade prekindergarten to 3, high grade up to 8); middle (low grade 4 to 7, high grade 4 to 9); high (low grade 7 to 12, high grade 12 only); other (any configuration not falling within the previous three, including ungraded schools). For states that did not provide a grade span, grade span was determined by the highest and lowest grades in which students were reported. U.S. totals include the 50 states and the District of Columbia. If all schools were ranked by student/teacher ratio from the smallest to the largest, half of the schools would fall below the median. For example, half of the primary schools in Alabama had a student/teacher ratio of less than 14.8.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000.

Table 7.—Distribution of regular public school districts and students, by district membership size: School year 1999–2000

District membership size	Number of districts	Percentage of districts	Percentage of students
United States	14,571	100.0	100.0
100,000 or more	25	0.2	12.4
25,000–99,999	213	1.5	19.7
10,000–24,999	579	4.0	18.7
7,500–9,999	320	2.2	6.0
5,000–7,499	716	4.9	9.4
2,500–4,999	2,068	14.2	15.6
2,000–2,499	806	5.5	3.9
1,500–1,999	1,087	7.5	4.1
1,000–1,499	1,564	10.7	4.2
800–999	807	5.5	1.6
600–799	1,007	6.9	1.5
450–599	920	6.3	1.0
300–449	1,161	8.0	0.9
150–299	1,489	10.2	0.7
1–149	1,809	12.4	0.3

NOTE: Table includes the 50 states and the District of Columbia, and excludes 357 regular school districts for which no students were reported in membership. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Local Education Agency Universe Survey," 1999–2000.

Table 8.—Distribution of public schools and students, by community type: School year 1999–2000

Community type	Number of schools	Percentage of schools	Percentage of students
United States	89,594	100.0	100.0
Large city	10,977	12.3	16.0
Midsize city	11,052	12.3	13.5
Urban fringe, large city	21,240	23.7	29.7
Urban fringe, midsize city	7,615	8.5	9.3
Large town	1,162	1.3	1.2
Small town	10,371	11.6	9.7
Rural	17,199	19.2	10.0
Rural urban fringe	9,978	11.1	10.7

NOTE: Community types classify the location of a school relative to populous areas. Table includes the 50 states and the District of Columbia, and excludes 2,413 schools in these jurisdictions for which no students were reported in membership. Table excludes 5 schools for which no locale codes could be assigned. Percentages are rounded to the nearest tenth and may not add to 100.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000.

Thirty-four states and the District of Columbia recognized charter schools in 1999–2000. Of this group, 30 reported the number of charter schools (table 9). The number ranged from a single charter school in Delaware, Mississippi, New Mexico, and Oregon to more than 200 in Arizona and California. In the District of Columbia, charter schools accounted for more than 8 percent of public school enrollment, more than double the proportion reported for any state. (Note that almost 9 percent of Puerto Rico's public school students were reported to be enrolled in charter schools.)

States were asked to identify magnet schools. Fifteen states and the District of Columbia reported that they did not have magnet schools, and 18 of those states with magnet schools were unable to identify them. Table 9 lists the number of magnet schools for the 17 states that reported this information. California and Illinois reported the greatest number of magnet schools, 473 and 350, respectively. Illinois serves about 12 percent of its students in magnet schools; in California, the figure is about 9 percent.

Table 9 shows the number of Title I eligible schools by state, and the number of these schools that have schoolwide Title I programs. Seven states did not identify which of their schools were eligible for Title I services. Of those that could provide this information, Colorado, the District of Columbia,

Table 9.—Number of Title I, magnet, and charter schools and percentage of students served, by state: School year 1999–2000

State	Number of Title I eligible schools[1]	Percentage of all students in these schools	Number of Title I schoolwide schools	Percentage of all students in these schools	Number of magnet schools[2]	Percentage of all students in these schools	Number of charter schools[2]	Percentage of all students in these schools
United States	—	—	—	—	—	—	—	—
Alabama	810	54.1	570	35.7	40	2.8	0	0.0
Alaska	279	33.2	80	11.2	—	—	18	1.7
Arizona	—	—	—	—	0	0.0	245	3.7
Arkansas	771	61.4	373	26.4	15	2.5	0	0.0
California	4,072	49.8	—	—	473	9.2	238	1.8
Colorado	1,240	75.0	344	18.9	—	—	69	2.5
Connecticut	410	35.9	91	9.1	13	0.9	16	0.4
Delaware	20	9.5	19	9.4	2	0.8	1	0.1
District of Columbia	146	81.1	120	72.9	0	0.0	27	8.3
Florida	1,127	33.5	1,020	30.4	—	—	113	0.7
Georgia	930	41.6	529	22.9	63	3.5	18	0.8
Hawaii	148	51.4	124	41.9	0	0.0	2	0.4
Idaho	481	66.0	84	10.1	0	0.0	8	0.4
Illinois	—	—	—	—	350	12.2	17	0.3
Indiana	1,041	47.9	147	6.3	—	—	0	0.0
Iowa	747	40.3	115	7.2	0	0.0	0	0.0
Kansas	647	34.8	—	—	0	0.0	0	0.0
Kentucky	845	55.8	656	41.6	0	0.0	0	0.0
Louisiana	836	49.3	697	41.1	66	5.6	16	0.3
Maine	—	—	—	—	—	—	—	—
Maryland	418	24.5	317	18.7	0	0.0	0	0.0
Massachusetts	1,819	96.8	3	0.0	8	0.5	40	1.3
Michigan	—	—	—	—	—	—	193	2.8
Minnesota	969	41.0	237	8.3	40	2.1	62	0.9
Mississippi	679	70.8	568	57.9	5	0.5	1	0.1
Missouri	1,180	47.1	359	13.5	95	5.2	15	0.5
Montana	661	77.7	113	12.9	0	0.0	0	0.0
Nebraska	441	34.2	98	10.2	—	—	0	0.0
Nevada	105	18.8	77	14.6	9	1.4	5	0.3
New Hampshire	404	79.0	15	2.3	0	0.0	0	0.0
New Jersey	—	—	—	—	—	—	—	—
New Mexico	543	62.8	223	26.7	—	—	1	0.0
New York	1,940	36.8	1,326	25.6	—	—	5	0.0
North Carolina	1,004	38.1	647	23.2	153	7.6	82	1.0
North Dakota	469	74.5	46	8.0	0	0.0	0	0.0
Ohio	2,644	63.7	1,100	26.4	0	0.0	48	0.5
Oklahoma	1,126	56.4	666	31.3	—	—	—	—
Oregon	594	40.0	200	13.6	—	—	1	0.0
Pennsylvania	1,813	50.2	470	15.3	—	—	47	0.6
Rhode Island	178	50.3	63	18.0	6	2.4	2	0.3
South Carolina	509	40.2	437	33.2	—	—	7	0.0
South Dakota	374	46.4	81	9.3	0	0.0	0	0.0
Tennessee	—	—	—	—	7	0.5	0	0.0
Texas	4,348	56.9	3,653	49.0	—	—	176	0.6
Utah	229	21.1	112	10.0	—	—	6	0.1
Vermont	209	57.8	55	15.4	0	0.0	0	0.0
Virginia	738	29.5	221	9.1	27	1.4	—	—
Washington	—	—	—	—	0	0.0	0	0.0
West Virginia	422	40.8	321	29.2	0	0.0	0	0.0
Wisconsin	1,076	46.2	237	12.8	—	—	45	0.4
Wyoming	154	36.1	44	10.8	—	—	—	—
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs								
DoDDS: DOD Overseas	—	—	—	—	—	—	—	—
DDESS: DOD Domestic	—	—	—	—	—	—	—	—
Bureau of Indian Affairs	—	—	—	—	—	—	—	—
American Samoa	—	—	—	—	—	—	—	—
Guam	—	—	—	—	—	—	—	—
Northern Marianas	—	—	—	—	—	—	—	—
Puerto Rico	1,214	78.9	946	63.6	214	15.8	119	8.7
Virgin Islands	36	100.0	—	—	—	—	—	—

—Data are missing

[1] Number of Title I eligible schools includes those with and without schoolwide Title I programs.

[2] Zero indicates that no schools of this type operate in a state.

NOTE: Percentages are based on all schools reporting in a state. Percentages of less than 0.05 are rounded to 0.0. Numbers of schools include those not reporting students in membership.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000.

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Massachusetts, Montana, and New Hampshire reported that three-fourths or more of all their public school students were in Title I eligible schools. Within the states identifying schools with schoolwide Title I programs, more than one-half of the students were enrolled in these schools in the District of Columbia and Mississippi.

Student Program Participation and Selected Characteristics

Nationally, over 12 percent of public school students had a special education Individual Education Program (IEP) in 1999–2000 (table 10). Among those states that did not underreport students with IEPs, the proportion ranged from over 10 percent in Colorado to almost 19 percent in New Mexico and Rhode Island.

Only 35 states and the District of Columbia reported the number of students receiving services for limited English proficiency (LEP). In California, there were 1.4 million LEP service recipients (almost one-fourth of all students) in 1999–2000, while Texas reported more than half a million students receiving LEP services.

Thirty-two states and the District of Columbia provided information about the number of migrant students who received appropriate services during the 1998–99 school year or the following summer. Because a single migrant student may enroll in several schools during the year, this is a duplicated count of students. Therefore, table 10 cannot estimate the proportion of students who were migrants. The greatest number of migrant students served, more than 116,000, was reported by Texas, although that state did not provide information about summer school programs. Florida had the second-highest enrollment of migrant students during the regular school year, more than 40,000 students.

All but four states reported the number of students eligible for free- or reduced-price meals. More than one-half of all students in the District of Columbia, Louisiana, Mississippi, and New Mexico were eligible for this program. The largest numbers of students eligible for free- or reduced-price meals were in California, with more than 2.8 million eligible students, and Texas, with almost 1.8 million.

Table 11 shows the distribution of minority students across cities, urban fringe areas, and small towns or rural communities in 1999–2000. In some states, the more urban districts were composed primarily of minority students. Three-fourths or more of students were minority group members in the large or mid-sized city schools of the District of Columbia, Georgia, Hawaii, Maryland, New Jersey, and New York. Small town and rural schools tended to have smaller proportions of minority students, but this was not the case for all states. In the small town and rural schools of Hawaii, Mississippi, and New Mexico, one-half or more of the students were minority group members.

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Data sources: The NCES Common Core of Data (CCD): "Public Elementary/Secondary School Universe Survey," 1999–2000; "Local Education Agency Universe Survey," 1999–2000; and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1999–2000.

For technical information, see the complete report:

Hoffman, L.M. (2001). *Overview of Public Elementary and Secondary Schools and Districts: School Year 1999–2000* (NCES 2001–339).

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To obtain the complete report (NCES 2001–339), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

Table 10.—Number and percentage of public school students participating in selected programs, by state: School year 1999–2000

State	Number of students with IEPs	Percentage of students with IEPs	Number of students receiving LEP services	Percentage of students receiving LEP services	Number of students receiving migrant services: school year[1]	Number of students receiving migrant services: summer	Number of students eligible for free- or reduced-price meals	Percentage of all students eligible for free- or reduced-price meals
United States	5,810,658	12.4	—	—	—	—	—	—
Alabama	98,835	13.5	7,911	1.1	6,322	2,846	328,183	45.0
Alaska	17,503	13.0	—	—	9,856	1,258	34,503	25.7
Arizona	89,987	10.6	125,301	14.7	—	—	—	—
Arkansas	53,632	11.9	9,102	2.0	—	1,242	204,740	45.4
California	643,243	10.8	1,442,277	24.2	—	—	2,806,614	47.1
Colorado	71,895	10.2	—	—	8,216	3,611	195,928	27.7
Connecticut	74,722	13.5	20,188	3.6	3,950	2,420	127,614	23.0
Delaware	16,125	14.1	1,617	1.4	—	279	37,120	32.9
District of Columbia	9,881	12.8	8,706	11.3	607	607	41,812	54.2
Florida	354,289	14.9	167,779	7.0	40,629	9,479	1,054,044	44.3
Georgia	154,586	10.9	44,393	3.1	20,255	3,924	611,014	42.9
Hawaii	21,138	11.4	12,289	6.6	0	39	72,457	39.0
Idaho	28,880	11.8	17,721	7.2	7,120	4,481	79,197	32.3
Illinois	281,028	13.9	122,365	6.0	—	—	—	—
Indiana	150,591	15.2	—	—	—	—	273,608	27.7
Iowa	71,066	14.2	4,821	1.0	2,508	450	130,931	26.5
Kansas	59,490	12.7	11,898	2.5	—	—	149,718	32.2
Kentucky	91,307	14.1	—	—	—	6,209	299,613	47.6
Louisiana	94,992	12.6	9,031	1.2	4,877	3,924	442,320	58.5
Maine	31,536	14.7	—	—	—	—	62,565	29.9
Maryland	110,742	13.1	17,055	2.0	—	323	251,165	29.7
Massachusetts	161,207	16.6	44,828	4.6	1,427	1,427	238,636	24.6
Michigan	81,588	[3]4.8	—	—	—	—	505,856	30.5
Minnesota	107,282	12.5	35,810	4.2	1,489	1,809	219,385	25.7
Mississippi	61,935	12.4	4,949	1.0	2,372	185	316,818	63.3
Missouri	134,210	14.7	8,157	0.9	2,833	517	312,863	34.2
Montana	18,978	12.0	—	—	—	—	48,948	30.9
Nebraska	43,472	15.1	9,144	3.2	3,551	1,093	86,031	29.8
Nevada	35,867	11.0	—	—	191	—	89,525	27.5
New Hampshire	27,895	13.5	1,914	0.9	—	—	32,885	15.9
New Jersey	82,301	[3]6.4	—	—	—	—	364,578	28.3
New Mexico	60,739	18.7	58,174	17.9	—	723	165,172	50.9
New York	418,672	14.5	50,063	1.7	—	—	1,230,162	42.6
North Carolina	172,466	13.5	37,265	2.9	—	6,371	497,886	39.0
North Dakota	13,405	11.9	—	—	381	533	32,350	28.7
Ohio	226,027	12.2	322	—	—	—	501,121	26.6
Oklahoma	82,999	13.2	35,647	5.7	—	741	285,467	45.5
Oregon	61,723	11.3	35,027	6.4	18,245	2,780	185,854	34.1
Pennsylvania	215,329	11.9	—	—	—	—	521,009	28.7
Rhode Island	28,993	18.5	9,220	5.9	170	170	51,474	32.9
South Carolina	91,333	13.7	3,379	0.5	—	731	307,524	46.1
South Dakota	15,980	12.2	4,659	3.6	1,997	206	36,978	28.2
Tennessee	134,581	14.8	—	—	—	—	—	—
Texas	482,427	12.1	555,334	13.9	116,011	—	1,783,820	44.7
Utah	55,389	11.6	37,275	7.8	2,146	2,943	132,117	27.6
Vermont	12,348	11.8	821	0.8	726	697	23,493	22.5
Virginia	157,024	13.9	21,787	1.9	999	304	336,627	29.7
Washington	118,117	11.8	—	—	—	—	—	—
West Virginia	50,314	17.2	—	—	—	—	145,393	49.8
Wisconsin	120,598	13.7	—	—	—	—	219,322	25.0
Wyoming	11,991	13.0	2,267	2.5	—	—	25,936	28.1
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs								
DoDDS: DOD Overseas	5,683	7.7	4,666	6.4	—	—	—	—
DDESS: DOD Domestic	31	0.1	1,927	5.7	—	—	—	—
Bureau of Indian Affairs	—	—	—	—	—	—	—	—
American Samoa	648	4.2	15,013	97.0	—	—	[2]15,384	[2]99.4
Guam	2,384	7.2	13,574	41.2	—	—	12,448	37.9
Northern Marianas	506	5.2	—	—	—	—	[2]4,464	[2]48.6
Puerto Rico	58,797	9.6	—	—	467	467	[2]497,501	[2]81.2
Virgin Islands	1,450	6.9	1,070	5.1	—	—	—	—

—Data are missing.

[1] Migrant students include those who were enrolled at any time during the previous (1998–99) regular school year. They are reported for each school in which they enroll; because this is a duplicated count, the table does not show migrants as a percentage of all students. Hawaii did not have a migrant education program in 1998–99.

[2] American Samoa, the Northern Marianas, and Puerto Rico reported students eligible for free meals, but not those eligible for reduced-price meals.

[3] Michigan and New Jersey report an undercount of students with IEPs.

NOTE: Percentages are based on schools and agencies reporting. Percentages are rounded to the nearest tenth and may not add to 100. Percentages of less than 0.05 are rounded to 0.0. U.S. totals include the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000, and "Local Education Agency Universe Survey," 1999–2000.

Table 11.—Minority student enrollment, by community type and by state: School year 1999–2000

State	Total students	Number of minority students	Percentage of minority students by community type		
			City, large and midsize	Urban fringe of city	Small town or rural
United States	46,857,321	17,680,852	—	—	—
Alabama	740,732	283,630	68.8	28.5	30.3
Alaska	134,391	50,857	35.1	0.0	40.9
Arizona	852,612	391,297	49.5	38.0	49.1
Arkansas	451,034	125,355	44.9	14.3	22.6
California	6,038,589	3,732,515	72.7	59.2	39.6
Colorado	708,109	215,653	43.9	26.8	20.1
Connecticut	553,993	163,371	68.4	19.1	7.6
Delaware	112,836	43,322	52.9	37.8	29.4
District of Columbia	77,194	74,043	95.9	0.0	[1]100.0
Florida	2,381,396	1,083,654	51.4	48.7	29.0
Georgia	1,422,762	632,535	79.5	46.6	32.4
Hawaii	185,860	147,782	81.8	79.5	78.1
Idaho	245,331	32,677	—	—	—
Illinois	2,027,600	797,657	74.2	28.8	7.5
Indiana	988,702	155,519	39.5	10.7	3.2
Iowa	497,301	45,647	20.7	6.6	4.0
Kansas	472,188	94,042	40.5	10.8	13.1
Kentucky	648,180	72,865	29.5	15.9	4.7
Louisiana	756,579	383,916	73.4	41.9	38.4
Maine	209,253	6,303	8.2	2.8	2.3
Maryland	846,582	386,924	76.5	46.8	20.0
Massachusetts	971,425	226,841	54.7	12.5	5.4
Michigan	1,725,617	409,313	69.0	16.3	6.5
Minnesota	854,034	137,104	51.2	10.7	7.1
Mississippi	500,716	262,556	73.7	27.3	53.2
Missouri	914,110	186,010	46.5	22.6	5.9
Montana	157,556	21,311	13.1	6.8	14.2
Nebraska	288,261	46,014	27.1	16.0	9.2
Nevada	325,610	133,538	48.1	43.3	23.4
New Hampshire	206,783	8,451	11.4	3.5	1.9
New Jersey	1,289,256	505,710	78.7	36.9	15.4
New Mexico	324,495	207,028	61.3	70.7	67.1
New York	2,887,776	1,292,003	79.7	22.0	6.3
North Carolina	1,275,925	487,864	51.7	30.2	33.1
North Dakota	112,751	11,922	8.0	6.5	12.3
Ohio	1,836,554	352,900	53.1	12.2	3.1
Oklahoma	627,032	212,186	45.7	24.2	32.9
Oregon	545,033	98,603	24.7	17.8	14.4
Pennsylvania	1,816,716	384,734	64.7	12.5	4.4
Rhode Island	156,454	38,408	51.0	11.9	4.2
South Carolina	666,780	298,904	55.2	35.1	47.5
South Dakota	131,037	17,000	15.1	7.9	12.6
Tennessee	916,202	247,681	—	—	—
Texas	3,991,783	2,269,814	73.4	43.9	40.7
Utah	480,255	63,185	25.9	10.6	9.6
Vermont	104,559	3,302	13.3	4.6	2.5
Virginia	1,133,994	403,810	57.8	33.3	21.8
Washington	1,003,714	246,177	34.5	24.0	18.1
West Virginia	291,811	15,227	10.8	6.4	3.8
Wisconsin	877,753	162,985	43.3	9.1	5.5
Wyoming	92,105	10,707	14.2	17.4	10.4
Outlying areas, DOD Dependents Schools, and Bureau of Indian Affairs					
DoDDS: DOD Overseas	73,504	23,666	—	—	—
DDESS: DOD Domestic	34,081	—	—	—	—
Bureau of Indian Affairs[2]	49,076	48,981	100.0	100.0	100.0
American Samoa	15,477	15,477	—	—	—
Guam	32,951	32,244	—	—	—
Northern Marianas	9,732	8,693	—	—	—
Puerto Rico	613,019	613,019	—	—	—
Virgin Islands	20,866	20,670	—	—	—

—Data are missing.

[1] Represents one school located in a small town locale outside the District of Columbia.

[2] Total students reported on State Nonfiscal Survey is greater than sum of students reported on School Universe Survey.

NOTE: Percentages are based on schools reporting. National percentages were not imputed if data were missing for one or more states. U.S. totals include the 50 states and the District of Columbia.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 1999–2000, and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1999–2000.

Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1998–99

Frank Johnson

This article was originally published as a Statistics in Brief report. The universe data are primarily from the "National Public Education Financial Survey" (NPEFS), part of the NCES Common Core of Data (CCD). Technical notes and definitions from the original report have been omitted.

Over $347 billion of revenues were raised to fund public education for grades prekindergarten through 12 in school year 1998–99. Current expenditures (those excluding construction, equipment, and debt financing) came to $303 billion. Three out of every five current expenditure dollars were spent on teachers, textbooks, and other instructional services and supplies. An average of $6,508 was spent on each student—an increase of 5.2 percent from $6,189 in school year 1997–98 (in unadjusted dollars).

These and other financial data on public elementary and secondary education are collected and reported each year by the National Center for Education Statistics (NCES), U.S. Department of Education. The data are part of the "National Public Education Financial Survey" (NPEFS), one of the components of the Common Core of Data (CCD) collection of surveys.

Revenues for Public Elementary and Secondary Education

Over $347 billion were collected for public elementary and secondary education for school year 1998–99 in the 50 states and the District of Columbia (table 1). Total revenues ranged from a high of around $40 billion in California, which serves about 1 out of every 8 students in the nation, to a low of about $709 million in North Dakota, which serves about 1 out of every 405 students in the nation. Nationally, revenues increased an average of 6.6 percent over previous year's revenues of $326 billion (in unadjusted dollars).*

By far, the greatest part of education revenues came from nonfederal sources (state, intermediate, and local governments), which together provided about $323 billion, or 92.9 percent of all revenues. The federal government contribution to education revenues made up the remaining $25 billion. (These numbers do not add up to $347 billion due to rounding.) The relative contributions from these levels of government can be expressed as portions of the typical education dollar (figure 1). For school year 1998–99, local and intermediate sources made up 44 cents of every dollar in revenue; state revenues comprised 49 cents; and the remaining 7 cents came from federal sources.

Among states with more than one school district, revenues from local sources ranged from 14.0 percent (New Mexico) to 87.1 percent (New Hampshire) of total revenues (table 2). Hawaii and the District of Columbia have only one school district each and thus are not comparable to other states. Revenues from state sources also showed a wide distribution in their share of total revenues. The state revenue share of total revenues was less than 30 percent in one state—New Hampshire (8.9 percent)—and more than 70 percent in Vermont (74.4 percent) and New Mexico (72.5 percent). Federal revenues ranged from 3.7 percent in New Jersey to 14.0 percent in Mississippi. Federal revenues made up 16.5 percent of total revenues in the District of Columbia.

Current Expenditures for Public Elementary and Secondary Education

Current expenditures for public education in 1998–99 totaled about $303 billion (table 3). This represents a $17 billion (6.1 percent) increase over expenditures in the previous school year ($285 billion in unadjusted dollars). About $187 billion in current expenditures went for instruction. Another $103 billion were expended for a cluster of services that support instruction. Over $13 billion were spent on noninstructional services.

When expressed in terms of the typical education dollar, instructional expenditures accounted for 62 cents of the education dollar for current expenditures (figure 2). Instructional expenditures include teachers' salaries and benefits, supplies (e.g., textbooks), and purchased services. About 34 cents of the education dollar went for support services, which include operation and maintenance of buildings, school administration, transportation, and other student and school support activities (e.g., student counseling, libraries, and health services). Approximately 4 cents of every education dollar went to noninstructional activities, which include school meals and enterprise activities, such as bookstores.

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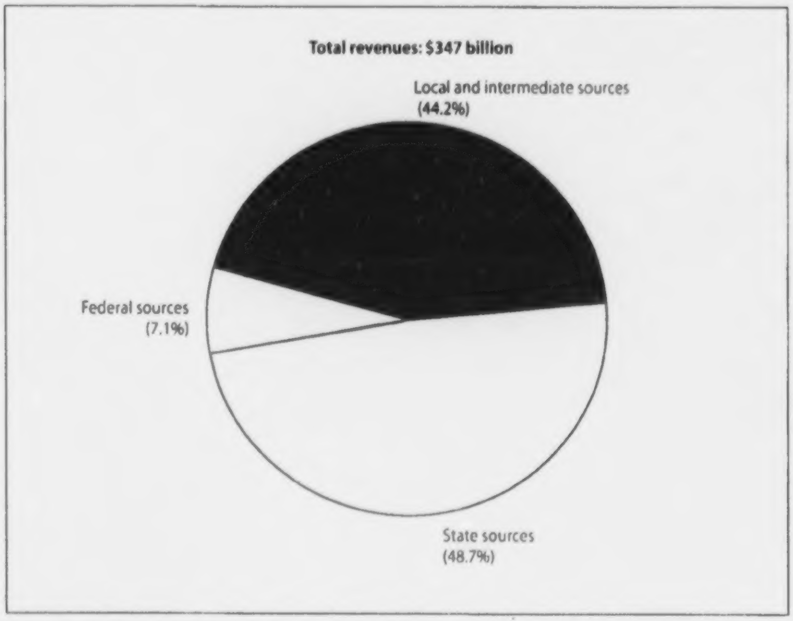
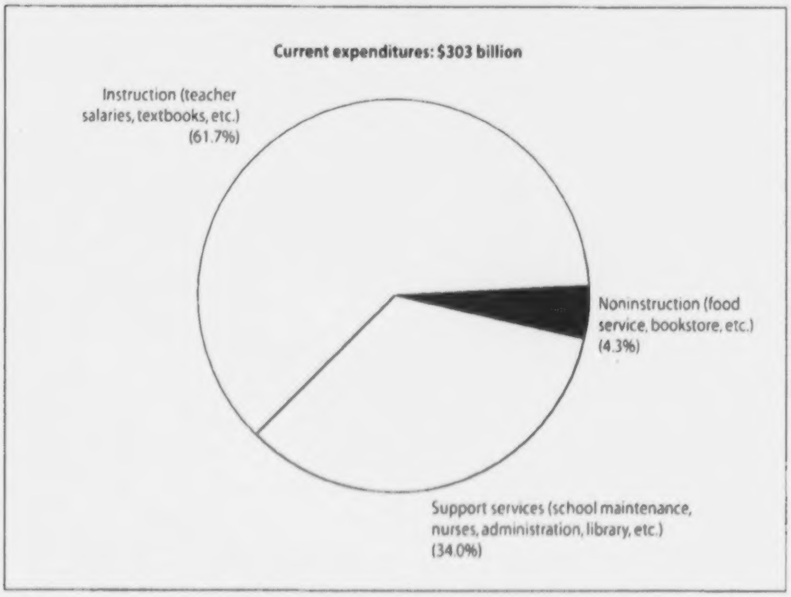
*Comparisons are based on the previous edition of this report, *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1997–98* (Johnson 2000).

Figure 1.—The public education dollar: Revenues by source: School year 1998–99



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1998–99.

Figure 2.—The public education dollar: Current expenditures by function: School year 1998–99



SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1998–99.

Most states were closely clustered around the national average (61.7 percent) in terms of the share of current expenditures that were spent on instruction; all but three states and the District of Columbia spent more than 58.0 percent of their current expenditures on instruction (table 4). These states were Alaska, Kansas, and New Mexico. Two states spent more than two-thirds of their current expenditures on instruction. These states were New York (67.8 percent) and Maine (67.3 percent).

Current Expenditures per Student

In 1998–99, the 50 states and the District of Columbia spent an average of $6,508 in current expenditures for every pupil in membership (table 5). This represents a 5.2 percent increase in current expenditures per student from the previous school year ($6,189 in unadjusted dollars). Three states—New Jersey ($10,145), New York ($9,344), and Connecticut ($9,318)—expended more than $9,000 per pupil. The District of Columbia, which comprises a single urban district, spent $9,650 per pupil. Only one state, Utah, had expenditures of less than $4,500 for each pupil in membership ($4,210). The median per pupil expenditure was $6,110, indicating that one-half of all states educated students at a cost of less than $6,110 per student.

On the average, for every student in 1998–99, about $4,013 was spent for instructional services, $2,213 was expended for support services, and $282 was spent for noninstructional purposes.

Total Expenditures

Total expenditures include all types of expenditures by school districts and other public elementary/secondary education agencies. Researchers generally use current expenditures instead of total expenditures, when comparing education spending between states or across time. Current expenditures exclude expenditures for capital outlay, which tend to have dramatic increases and decreases. Also, the current expenditures commonly reported are for public elementary and secondary education only. School districts also support community services, adult education, private education, and other programs. These programs and the extent to which they are funded by school districts vary greatly both across states and within states.

Total expenditures for the nation totaled nearly $356 billion in the 1998–99 school year (table 6). About $303 billion of total expenditures were current expenditures for public elementary and secondary education. An additional $32 billion went for facilities acquisition and construction, $8 billion for replacement equipment, and another $8 billion for interest payments on debt. The remaining amount ($5 billion) was spent on other programs that are not part of public elementary and secondary education.

Reference

Johnson, F. (2000). *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1997–98* (NCES 2000-348). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Data sources: The NCES Common Core of Data (CCD): "National Public Education Financial Survey" (NPEFS), 1997–98 and 1998–99; and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1998–99 (Revised).

For technical information, see the complete report:

Johnson, F. (2001). *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 1998–99* (NCES 2001–321).

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To obtain the complete report (NCES 2001–321), visit the NCES Web Site (*http://nces.ed.gov*).

Table 1.—Revenues for public elementary and secondary schools, by source and state: School year 1998–99

[In thousands of dollars]

State	Revenues, by source				
	Total	Local	Intermediate	State	Federal
United States	*$347,329,664	*$152,357,106	$1,152,510	$169,298,232	$24,521,817
Alabama	4,469,278	1,298,576	11,045	2,752,647	407,011
Alaska	1,290,358	324,621	0	787,763	177,974
Arizona	5,079,076	2,242,162	134,373	2,195,345	507,196
Arkansas	2,610,267	831,216	2,980	1,509,796	266,276
California	40,002,760	12,820,245	0	23,739,295	3,443,221
Colorado	4,714,756	2,455,786	13,963	2,002,525	242,481
Connecticut	*5,607,014	*3,199,294	0	2,184,637	223,083
Delaware	959,482	271,043	0	617,023	71,416
District of Columbia	760,592	635,102	0	0	125,490
Florida	16,460,206	6,879,069	0	8,279,709	1,301,428
Georgia	10,263,338	4,529,629	0	5,044,094	689,614
Hawaii	1,328,572	31,085	0	1,166,940	130,547
Idaho	1,420,902	446,213	0	874,429	100,260
Illinois	15,338,740	9,624,278	0	4,610,903	1,103,559
Indiana	7,980,582	3,339,936	51,712	4,190,124	398,810
Iowa	3,516,165	1,536,252	8,288	1,775,997	195,628
Kansas	3,282,779	966,393	94,253	2,021,434	200,698
Kentucky	4,210,793	1,221,089	0	2,600,631	389,074
Louisiana	*4,697,639	*1,789,893	0	2,366,566	541,180
Maine	1,703,252	794,721	0	781,035	127,495
Maryland	6,806,086	3,746,220	0	2,687,925	371,941
Massachusetts	8,534,080	4,517,905	0	3,593,252	422,923
Michigan	14,678,359	4,126,690	19,233	9,493,662	1,038,773
Minnesota	6,785,487	2,306,753	230,734	3,907,686	340,314
Mississippi	2,544,561	792,388	463	1,396,182	355,527
Missouri	6,265,697	3,382,250	31,825	2,446,271	405,351
Montana	1,047,338	362,625	96,073	470,763	117,877
Nebraska	2,168,308	1,198,453	14,915	804,817	150,123
Nevada	2,094,467	1,319,998	0	678,951	95,518
New Hampshire	1,441,115	1,255,189	0	127,702	58,224
New Jersey	14,192,543	7,796,638	83	5,868,487	527,334
New Mexico	2,098,648	294,395	0	1,522,000	282,253
New York	29,874,220	15,364,660	111,126	12,599,176	1,799,258
North Carolina	8,137,116	1,987,916	0	5,590,644	558,556
North Dakota	709,427	324,743	6,823	285,772	92,088
Ohio	14,399,472	7,479,793	32,198	6,057,593	829,887
Oklahoma	3,652,130	1,049,459	69,982	2,200,010	332,679
Oregon	4,047,900	1,391,092	74,785	2,297,679	284,344
Pennsylvania	15,525,301	8,641,043	13,771	5,933,154	937,333
Rhode Island	1,319,597	696,951	0	548,776	73,870
South Carolina	4,398,145	1,744,791	0	2,291,942	361,412
South Dakota	829,028	434,449	10,046	297,347	87,186
Tennessee	5,089,341	2,239,663	0	2,404,133	445,545
Texas	25,647,339	12,540,382	65,345	10,873,810	2,167,802
Utah	2,449,890	781,250	0	1,496,345	172,295
Vermont	908,146	179,360	0	675,896	52,890
Virginia	*8,358,036	*5,094,040	0	2,825,340	438,656
Washington	7,212,175	2,061,181	84	4,659,490	491,420
West Virginia	2,229,692	639,239	1,414	1,398,405	190,635
Wisconsin	7,409,485	3,114,260	0	3,955,854	339,371
Wyoming	779,985	256,725	56,996	408,271	57,993
Outlying areas					
American Samoa	57,667	3,642	50	11,139	42,836
Guam	—	—	—	—	—
Northern Marianas	53,720	252	0	37,730	15,737
Puerto Rico	2,121,183	357	0	1,532,799	588,027
Virgin Islands	160,253	130,533	0	0	29,720

—Data not available.

*Value contains imputation for missing data. Imputed value is less than 2 percent of total revenues in any one state.

NOTE: Detail may not add to totals due to rounding. National figures do not include outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1998–99.

Table 2.—Percentage distribution of revenues for public elementary and secondary schools, by source and state: School year 1998–99

State	Total	Within-state percentage distribution			
		Local	Intermediate	State	Federal
United States*	100.0	43.9	0.3	48.7	7.1
Alabama	100.0	29.1	0.2	61.6	9.1
Alaska	100.0	25.2	0.0	61.0	13.8
Arizona	100.0	44.1	2.6	43.2	10.0
Arkansas	100.0	31.8	0.1	57.8	10.2
California	100.0	32.0	0.0	59.3	8.6
Colorado	100.0	52.1	0.3	42.5	5.1
Connecticut*	100.0	57.1	0.0	39.0	4.0
Delaware	100.0	28.2	0.0	64.3	7.4
District of Columbia	100.0	83.5	0.0	0.0	16.5
Florida	100.0	41.8	0.0	50.3	7.9
Georgia	100.0	44.1	0.0	49.1	6.7
Hawaii	100.0	2.3	0.0	87.8	9.8
Idaho	100.0	31.4	0.0	61.5	7.1
Illinois	100.0	62.7	0.0	30.1	7.2
Indiana	100.0	41.9	0.6	52.5	5.0
Iowa	100.0	43.7	0.2	50.5	5.6
Kansas	100.0	29.4	2.9	61.6	6.1
Kentucky	100.0	29.0	0.0	61.8	9.2
Louisiana*	100.0	38.1	0.0	50.4	11.5
Maine	100.0	46.7	0.0	45.9	7.5
Maryland	100.0	55.0	0.0	39.5	5.5
Massachusetts	100.0	52.9	0.0	42.1	5.0
Michigan	100.0	28.1	0.1	64.7	7.1
Minnesota	100.0	34.0	3.4	57.6	5.0
Mississippi	100.0	31.1	0.0	54.9	14.0
Missouri	100.0	54.0	0.5	39.0	6.5
Montana	100.0	34.6	9.2	44.9	11.3
Nebraska	100.0	55.3	0.7	37.1	6.9
Nevada	100.0	63.0	0.0	32.4	4.6
New Hampshire	100.0	87.1	0.0	8.9	4.0
New Jersey	100.0	54.9	0.0	41.3	3.7
New Mexico	100.0	14.0	0.0	72.5	13.4
New York	100.0	51.4	0.4	42.2	6.0
North Carolina	100.0	24.4	0.0	68.7	6.9
North Dakota	100.0	45.8	1.0	40.3	13.0
Ohio	100.0	51.9	0.2	42.1	5.8
Oklahoma	100.0	28.7	1.9	60.2	9.1
Oregon	100.0	34.4	1.8	56.8	7.0
Pennsylvania	100.0	55.7	0.1	38.2	6.0
Rhode Island	100.0	52.8	0.0	41.6	5.6
South Carolina	100.0	39.7	0.0	52.1	8.2
South Dakota	100.0	52.4	1.2	35.9	10.5
Tennessee	100.0	44.0	0.0	47.2	8.8
Texas	100.0	48.9	0.3	42.4	8.5
Utah	100.0	31.9	0.0	61.1	7.0
Vermont	100.0	19.8	0.0	74.4	5.8
Virginia*	100.0	60.9	0.0	33.8	5.2
Washington	100.0	28.6	0.0	64.6	6.8
West Virginia	100.0	28.7	0.1	62.7	8.5
Wisconsin	100.0	42.0	0.0	53.4	4.6
Wyoming	100.0	32.9	7.3	52.3	7.4
Outlying areas					
American Samoa	100.0	6.3	0.1	19.3	74.3
Guam	—	—	—	—	—
Northern Marianas	100.0	0.5	0.0	70.2	29.3
Puerto Rico	100.0	0.0	0.0	72.3	27.7
Virgin Islands	100.0	81.5	0.0	0.0	18.5

—Data not available.

*Value contains imputation for missing data. Imputed value is less than 2 percent of total revenues in any one state.

NOTE: Detail may not add to totals due to rounding. National figures do not include outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1998–99.

Table 3.—Current expenditures for public elementary and secondary schools, by function and state: School year 1998–99

[In thousands of dollars]

State	Current expenditures, by function			
	Total	Instruction	Support services	Noninstruction
United States	[1]$302,873,955	[1]$186,756,251	[2]$102,984,961	[1]$13,132,743
Alabama	3,880,188	2,400,979	1,210,422	268,786
Alaska	1,137,610	[2]643,949	[2]456,525	37,136
Arizona	3,963,428	[2]2,380,620	[2]1,385,289	197,519
Arkansas	2,241,244	1,436,486	649,836	154,921
California	34,379,878	20,972,433	12,034,782	1,372,663
Colorado	4,140,699	2,410,400	1,581,647	148,652
Connecticut	[1]5,075,581	3,225,862	1,602,041	[1]247,678
Delaware	872,786	534,174	298,325	40,287
District of Columbia	[1]693,716	[1]314,468	[2]351,290	27,958
Florida	13,534,374	7,925,242	4,945,464	663,668
Georgia	8,537,177	5,339,447	2,726,325	471,404
Hawaii	1,143,713	718,107	350,077	75,529
Idaho	1,239,755	767,909	417,679	54,167
Illinois	13,602,965	8,240,926	4,889,281	472,759
Indiana	6,697,468	4,183,169	2,229,545	284,755
Iowa	3,110,585	1,828,806	1,048,543	233,236
Kansas	2,841,147	1,632,547	1,066,511	142,090
Kentucky	3,645,631	2,249,562	1,190,541	205,528
Louisiana	[1]4,264,981	2,576,840	1,343,988	[1]344,153
Maine	1,510,024	1,015,728	441,736	52,560
Maryland	6,165,934	3,791,102	2,092,027	282,805
Massachusetts	7,948,502	5,295,485	2,406,210	246,807
Michigan	12,785,480	7,432,224	4,980,257	372,999
Minnesota	5,816,329	3,647,489	1,929,556	239,284
Mississippi	2,293,188	1,384,027	746,304	162,857
Missouri	5,348,366	3,293,321	1,826,265	228,780
Montana	955,695	597,772	318,994	38,929
Nebraska	1,821,310	[2]1,145,752	538,485	[2]137,073
Nevada	1,738,009	1,040,680	643,224	54,105
New Hampshire	1,316,946	[2]858,974	[2]412,145	[2]45,827
New Jersey	12,874,579	7,705,505	4,790,297	378,778
New Mexico	1,788,382	1,015,367	686,625	86,390
New York	26,885,444	18,227,087	7,930,135	728,221
North Carolina	7,097,882	4,458,396	2,220,444	419,042
North Dakota	625,428	382,138	192,382	50,908
Ohio	12,207,147	7,198,914	4,565,168	443,064
Oklahoma	3,332,697	2,000,616	1,116,721	215,360
Oregon	3,706,044	2,195,694	1,383,787	126,563
Pennsylvania	13,532,211	8,575,108	4,453,339	503,763
Rhode Island	1,283,859	851,859	396,871	35,129
South Carolina	3,759,042	2,242,844	1,292,082	224,116
South Dakota	696,785	424,211	235,257	37,317
Tennessee	4,638,924	3,032,953	1,372,663	233,308
Texas	22,430,153	13,571,196	7,671,526	1,187,430
Utah	2,025,714	1,328,807	574,738	122,168
Vermont	792,664	512,432	258,060	22,172
Virginia	[1]7,137,421	4,340,680	2,423,409	[1]373,333
Washington	[2]6,098,036	[2]3,646,974	2,154,875	296,187
West Virginia	1,986,562	1,230,925	638,769	116,868
Wisconsin	6,620,653	4,138,977	2,277,038	204,639
Wyoming	651,622	391,091	237,459	23,072
Outlying areas				
American Samoa	35,092	15,014	13,238	6,840
Guam	—	—	—	—
Northern Marianas	50,450	40,667	6,456	3,327
Puerto Rico	2,024,499	1,386,049	406,614	231,835
Virgin Islands	146,474	89,700	49,828	6,946

—Data not available.

[1] Value contains imputation for missing data. Imputed value is less than 2 percent of total current expenditures in any one state.

[2] Value affected by redistribution of reported values for missing data items.

NOTE: Detail may not add to totals due to rounding. National figures do not include outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1998–99.

Table 4.—Percentage distribution of current expenditures for public elementary and secondary schools, by function and state: School year 1998–99

State	Total	Within-state percentage distribution		
		Instruction	Support services	Noninstruction
United States*	100.0	61.7	34.0	4.3
Alabama	100.0	61.9	31.2	6.9
Alaska*	100.0	56.6	40.1	3.3
Arizona*	100.0	60.1	35.0	5.0
Arkansas	100.0	64.1	29.0	6.9
California	100.0	61.0	35.0	4.0
Colorado	100.0	58.2	38.2	3.6
Connecticut*	100.0	63.6	31.6	4.9
Delaware	100.0	61.2	34.2	4.6
District of Columbia*	100.0	45.3	50.6	4.0
Florida	100.0	58.6	36.5	4.9
Georgia	100.0	62.5	31.9	5.5
Hawaii	100.0	62.8	30.6	6.6
Idaho	100.0	61.9	33.7	4.4
Illinois	100.0	60.6	35.9	3.5
Indiana	100.0	62.5	33.3	4.3
Iowa	100.0	58.8	33.7	7.5
Kansas	100.0	57.5	37.5	5.0
Kentucky	100.0	61.7	32.7	5.6
Louisiana*	100.0	60.4	31.5	8.1
Maine	100.0	67.3	29.3	3.5
Maryland	100.0	61.5	33.9	4.6
Massachusetts	100.0	66.6	30.3	3.1
Michigan	100.0	58.1	39.0	2.9
Minnesota	100.0	62.7	33.2	4.1
Mississippi	100.0	60.4	32.5	7.1
Missouri	100.0	61.6	34.1	4.3
Montana	100.0	62.5	33.4	4.1
Nebraska*	100.0	62.9	29.6	7.5
Nevada	100.0	59.9	37.0	3.1
New Hampshire*	100.0	65.2	31.3	3.5
New Jersey	100.0	59.9	37.2	2.9
New Mexico	100.0	56.8	38.4	4.8
New York	100.0	67.8	29.5	2.7
North Carolina	100.0	62.8	31.3	5.9
North Dakota	100.0	61.1	30.8	8.1
Ohio	100.0	59.0	37.4	3.6
Oklahoma	100.0	60.0	33.5	6.5
Oregon	100.0	59.2	37.3	3.4
Pennsylvania	100.0	63.4	32.9	3.7
Rhode Island	100.0	66.4	30.9	2.7
South Carolina	100.0	59.7	34.4	6.0
South Dakota	100.0	60.9	33.8	5.4
Tennessee	100.0	65.4	29.6	5.0
Texas	100.0	60.5	34.2	5.3
Utah	100.0	65.6	28.4	6.0
Vermont	100.0	64.6	32.6	2.8
Virginia*	100.0	60.8	34.0	5.2
Washington*	100.0	59.8	35.3	4.9
West Virginia	100.0	62.0	32.2	5.9
Wisconsin	100.0	62.5	34.4	3.1
Wyoming	100.0	60.0	3[illegible].4	3.5
Outlying areas				
American Samoa	100.0	42.8	37.7	19.5
Guam	—	—	—	—
Northern Marianas	100.0	80.6	12.8	6.6
Puerto Rico	100.0	68.5	20.1	11.5
Virgin Islands	100.0	61.2	34.0	4.7

—Data not available.

*Distribution affected by imputations and redistribution of reported values to correct for missing items.

NOTE: Detail may not add to totals due to rounding. National figures do not include outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1998–99.

Table 5.—Student membership and current expenditures per pupil in membership for public elementary and secondary schools, by function and state: School year 1998–99

State	Fall 1998 student membership	Current expenditures per pupil in membership			
		Total	Instruction	Support services	Noninstruction
United States	[1]46,538,585	[1]$6,508	[1]$4,013	[1]$2,213	[1]$282
Alabama	[1]747,980	[1]5,188	[1]3,210	[1]1,618	[1]359
Alaska	135,373	8,404	[2]4,757	3,372	274
Arizona	848,262	4,672	[2]2,806	1,633	233
Arkansas	452,256	4,956	3,176	1,437	343
California	[1]5,926,037	[1]5,801	[1]3,539	[1]2,031	[1]232
Colorado	699,135	5,923	3,448	2,262	213
Connecticut	544,698	[1]9,318	5,922	2,941	[1]455
Delaware	113,262	7,706	4,716	2,634	356
District of Columbia	71,889	[1]9,650	[1]4,374	[2]4,887	389
Florida	2,337,633	5,790	3,390	2,116	284
Georgia	1,401,291	6,092	3,810	1,946	336
Hawaii	188,069	6,081	3,818	1,861	402
Idaho	244,722	5,066	3,138	1,707	221
Illinois	2,011,530	6,762	4,097	2,431	235
Indiana	989,001	6,772	4,230	2,254	288
Iowa	498,214	6,243	3,671	2,105	468
Kansas	472,353	6,015	3,456	2,258	301
Kentucky	655,687	5,560	3,431	1,816	313
Louisiana	768,734	[1]5,548	3,352	1,748	[1]448
Maine	211,051	7,155	4,813	2,093	249
Maryland	841,671	7,326	4,504	2,486	336
Massachusetts	962,317	8,260	5,503	2,500	256
Michigan	1,720,287	7,432	4,320	2,895	217
Minnesota	856,455	6,791	4,259	2,253	279
Mississippi	502,379	4,565	2,755	1,486	324
Missouri	913,494	5,855	3,605	1,999	250
Montana	159,988	5,974	3,736	1,994	243
Nebraska	291,140	6,256	[2]3,935	1,850	[2]471
Nevada	311,061	5,587	3,346	2,068	174
New Hampshire	204,713	6,433	[2]4,196	[2]2,013	[2]224
New Jersey	1,268,996	10,145	6,072	3,775	298
New Mexico	328,753	5,440	3,089	2,089	263
New York	2,877,143	9,344	6,335	2,756	253
North Carolina	1,254,821	5,656	3,553	1,770	334
North Dakota	114,927	5,442	3,325	1,674	443
Ohio	1,842,163	6,627	3,908	2,478	241
Oklahoma	628,492	5,303	3,183	1,777	343
Oregon	542,809	6,828	4,045	2,549	233
Pennsylvania	1,816,414	7,450	4,721	2,452	277
Rhode Island	154,785	8,294	5,503	2,564	227
South Carolina	[1]664,600	[1]5,656	[1]3,375	[1]1,944	[1]337
South Dakota	132,495	5,259	3,202	1,776	282
Tennessee	[1]905,454	[1]5,123	[1]3,350	[1]1,516	[1]258
Texas	3,945,367	5,685	3,440	1,944	301
Utah	481,176	4,210	2,762	1,194	254
Vermont	105,120	7,541	4,875	2,455	211
Virginia	1,124,022	[1]6,350	3,862	2,156	[1]332
Washington	998,053	[2]6,110	[2]3,654	2,159	297
West Virginia	297,530	6,677	4,137	2,147	393
Wisconsin	879,542	7,527	4,706	2,589	233
Wyoming	95,241	6,842	4,106	2,493	242
Outlying areas					
American Samoa	15,372	2,283	977	861	445
Guam	32,222	—	—	—	—
Northern Marianas	9,498	5,312	4,282	680	350
Puerto Rico	613,862	3,298	2,258	662	378
Virgin Islands	20,976	6,983	4,276	2,375	331

—Data not available.

[1] Value contains imputation for missing data.

[2] Value affected by redistribution of reported expenditure values for missing data items.

NOTE: Detail may not add to totals due to rounding. National figures do not include outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD): "National Public Education Financial Survey," 1998–99; and "State Nonfiscal Survey of Public Elementary/Secondary Education," 1998–99 (Revised).

Table 6.—Total expenditures, including interest on debt, for public elementary and secondary education and other related programs supported by public school districts: School year 1998-99

[In thousands of dollars]

State	Total expenditures (including interest on debt)	Public elementary and secondary education			Other programs	Interest on debt
		Current	Facilities acquisition and construction	Replacement equipment		
United States	[1]$355,859,449	[1]$302,873,955	$31,606,994	[2]$7,919,652	[1]$5,262,613	[1]$8,196,236
Alabama	4,626,884	3,880,188	397,740	121,041	171,898	56,016
Alaska	1,264,525	1,137,610	84,199	20,582	4,925	17,210
Arizona	5,341,305	3,963,428	1,061,066	281,668	28,041	7,103
Arkansas	2,480,435	2,241,244	124,257	50,789	15,724	48,421
California	39,973,279	34,379,878	3,779,490	909,009	663,236	241,666
Colorado	5,024,543	4,140,699	508,227	120,565	38,260	216,791
Connecticut	[1]5,827,005	[1]5,075,581	447,754	85,247	[1]96,314	122,109
Delaware	972,747	872,786	56,322	17,189	14,516	11,934
District of Columbia	[1]755,576	[1]693,716	30,086	13,756	1,784	[1]16,235
Florida	16,615,626	13,534,374	1,889,232	210,164	459,476	522,379
Georgia	10,113,816	8,537,177	1,106,237	248,728	44,952	176,722
Hawaii	1,400,063	1,143,713	157,855	25,309	32,952	40,235
Idaho	1,420,733	1,239,755	114,393	34,530	3,507	28,549
Illinois	16,255,656	13,602,965	1,701,432	540,037	121,406	289,817
Indiana	8,111,363	6,697,468	682,366	130,852	53,115	547,562
Iowa	3,521,011	3,110,585	226,933	113,256	21,400	48,837
Kansas	3,155,418	2,841,147	89,727	136,783	3,089	84,673
Kentucky	3,948,832	3,645,631	54,693	124,920	44,661	78,926
Louisiana	[1]4,801,137	[1]4,264,981	289,931	128,729	17,627	99,868
Maine	1,642,951	1,510,024	51,338	32,080	16,550	32,961
Maryland	7,182,797	6,165,934	814,071	113,982	20,903	67,906
Massachusetts	8,368,976	7,948,502	39,412	115,038	83,754	182,270
Michigan	15,604,340	12,785,480	1,688,999	345,938	320,671	463,254
Minnesota	7,353,993	5,816,329	782,357	203,468	279,907	271,932
Mississippi	2,830,349	2,293,188	355,383	111,877	16,001	53,901
Missouri	6,242,701	5,348,366	420,587	194,477	105,770	173,501
Montana	1,052,773	955,695	55,463	23,714	6,426	11,475
Nebraska	2,086,536	1,821,310	140,745	88,165	2,631	33,686
Nevada	2,301,747	1,738,009	381,022	[2]68,182	[2]11,776	102,758
New Hampshire	1,430,462	1,316,946	63,095	21,083	3,305	26,033
New Jersey	14,250,489	12,874,579	865,793	137,544	165,775	206,797
New Mexico	2,116,905	1,788,382	264,233	22,650	10,971	30,669
New York	30,357,364	26,885,444	1,407,188	379,959	1,010,219	674,555
North Carolina	[1]8,712,151	7,097,882	1,209,573	158,241	54,456	[1]191,999
North Dakota	711,740	625,428	50,176	23,608	4,800	7,728
Ohio	14,006,167	12,207,147	752,439	455,709	369,125	221,747
Oklahoma	3,668,577	3,332,697	182,998	107,926	10,464	34,491
Oregon	4,173,853	3,706,044	260,634	81,878	25,653	99,643
Pennsylvania	16,343,516	13,532,211	1,602,282	259,832	325,740	623,451
Rhode Island	1,341,549	1,283,859	8,958	20,068	7,885	20,779
South Carolina	4,612,674	3,759,042	608,673	99,603	45,706	99,649
South Dakota	840,515	696,785	89,145	36,822	1,454	16,309
Tennessee	5,432,316	4,638,924	553,330	116,811	24,753	98,497
Texas	27,496,479	22,430,153	3,323,470	631,757	157,648	953,452
Utah	2,536,260	2,025,714	324,244	48,275	59,763	78,265
Vermont	853,705	792,664	24,687	19,455	2,272	14,626
Virginia	[1]8,376,912	[1]7,137,421	699,794	220,651	131,782	187,264
Washington	[2]7,449,610	[2]6,098,036	912,915	133,876	33,210	271,573
West Virginia	2,207,537	1,986,562	98,113	79,550	29,321	13,992
Wisconsin	7,928,144	6,620,653	740,573	216,222	85,286	265,409
Wyoming	735,411	651,622	33,364	38,060	1,753	10,612
Outlying areas						
American Samoa	43,864	35,092	2,597	3,210	2,965	0
Guam	—	—	—	—	—	—
Northern Marianas	55,463	50,450	4,466	318	230	0
Puerto Rico	2,090,530	2,024,499	43	3,826	43,518	18,645
Virgin Islands	152,211	146,474	1,017	2,983	1,737	0

—Data not available.

[1] Value contains imputation for missing data. Imputed value is less than 2 percent of total expenditures in any one state.

[2] Value affected by redistribution of reported values for missing data items.

NOTE: Detail may not add to totals due to rounding. National figures do not include outlying areas.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "National Public Education Financial Survey," 1998–99.

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High School Curriculum

High School Academic Curriculum and the Persistence Path Through College: Persistence and Transfer Behavior of Undergraduates 3 Years After Entering 4-Year Institutions

Laura Horn and Lawrence K. Kojaku

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the Beginning Postsecondary Students Longitudinal Study (BPS).

This report examines the relationship between high school academic curricula and students' persistence path through college, approximately 3 years after first enrolling. The data are drawn from the 1996 Beginning Postsecondary Students Longitudinal Study (BPS:96/98), a study of beginning postsecondary students who first enrolled in a 4-year college in 1995–96. Measures of high school academic preparation are based on academic courses taken in high school as reported by students on their college entrance exam applications.

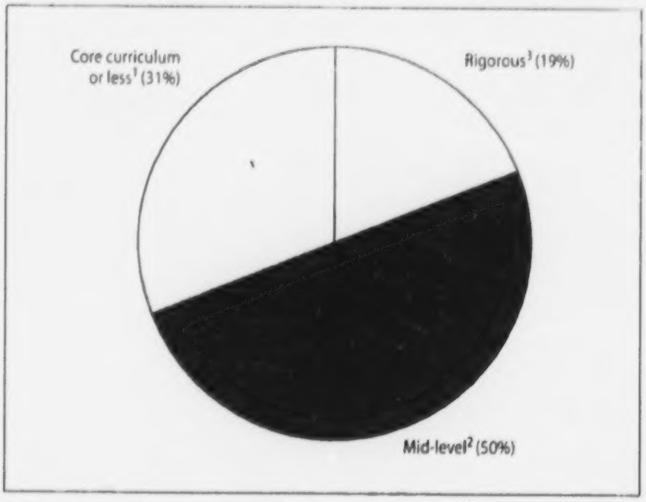
The high school academic curriculum measure identifies three levels of coursetaking: (1) core curriculum or below, (2) mid-level, and (3) rigorous. The lowest threshold is based on the core New Basics curriculum first recommended by the National Commission on Excellence in Education in *A Nation at Risk* (1983). Core curriculum includes 4 years of English, 3 years of mathematics, 3 years of science, and 3 years of social studies.[1] The highest threshold, or rigorous curriculum, identified in the current study, includes 4 years of English, 3 years of a foreign language, 3 years of social studies, 4 years of mathematics (including precalculus or higher), 3 years of science (including biology, chemistry, and physics), and at least one Advanced Placement (AP) course or test taken. Mid-level covers curricula between core and rigorous curricula, but at a minimum must include algebra I, geometry, at least 1 year of a foreign language, and two science classes from the combination of biology, chemistry, and physics.[2]

Level of High School Academic Curriculum Completed

The distribution of beginning students enrolled in 4-year institutions across the three levels of coursetaking is displayed in figure A. Approximately one-third (31 percent) reported completing course work no higher than core curricula, one-half completed mid-level curricula, and the remaining one-fifth (19 percent) completed rigorous curricula.

The level of high school academic curriculum completed by beginning 4-year college students was associated with their demographic and socioeconomic characteristics and also with the economic status of the student body in their high schools. Specifically, students from low-income families, students whose parents had no more than a high school education, and students who graduated from high schools in which 25 percent or more of the students were eligible for free or reduced-price lunches were less likely than their more advantaged counterparts to report completing rigorous high school curricula.

Figure A.—Percentage distribution of 1995-96 beginning postsecondary students who enrolled in 4-year institutions, by high school academic curriculum



[1] Core curriculum includes 4 years of English, 3 years of social studies, 3 years of mathematics, and 3 years of science.

[2] Mid-level curriculum exceeds core curriculum, but is less than rigorous. Includes at a minimum 1 year of a foreign language, geometry, algebra I, and 3 years of science including two of the following courses: biology, chemistry, or physics.

[3] Rigorous curriculum includes 4 years of English, 4 years of mathematics (including precalculus or higher), 3 years of a foreign language, 3 years of social studies, 3 years of science (including biology, chemistry, and physics), and at least one Advanced Placement (AP) class or test taken.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

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[1] It also included courses in computer science, but students did not report on such courses on their entrance exam applications.

[2] The research of Burkam, Lee, and Smerdon (1996) and Adelman (1999) was used extensively in guiding the development of the academic curriculum variable.

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Related in part to family income, racial/ethnic group differences also were apparent. Black students were much less likely than either White or Asian/Pacific Islander students to complete rigorous curricula (8 percent vs. 20 and 31 percent, respectively) and more likely to complete programs no higher than the core curriculum (42 percent vs. 29 and 27 percent). Asian/Pacific Islander students were the most likely to complete rigorous curricula (31 percent). While it appears as though White students were more likely than Hispanic students to complete rigorous curricula (20 percent vs. 16 percent) and less likely to complete no higher than core curricula (29 percent vs. 34 percent), there was not enough statistical evidence to draw this conclusion.

High school academic curriculum also had an obvious association with where students first enrolled in college. As the level of curricula increased, so did students' likelihood of attending selective 4-year colleges or universities.[3] For example, 71 percent of students who completed rigorous curricula enrolled in a selective college or university, compared with 40 percent who completed mid-level curricula and 32 percent who completed core curricula or lower.

Postsecondary Persistence 3 Years After Enrolling

As of 1998, roughly two-thirds of students who had first enrolled in a 4-year college in 1995–96 were still enrolled in the same college (including 6 percent who had left and returned; figure B). One-fifth had transferred to another institution, and 13 percent had left and not returned.

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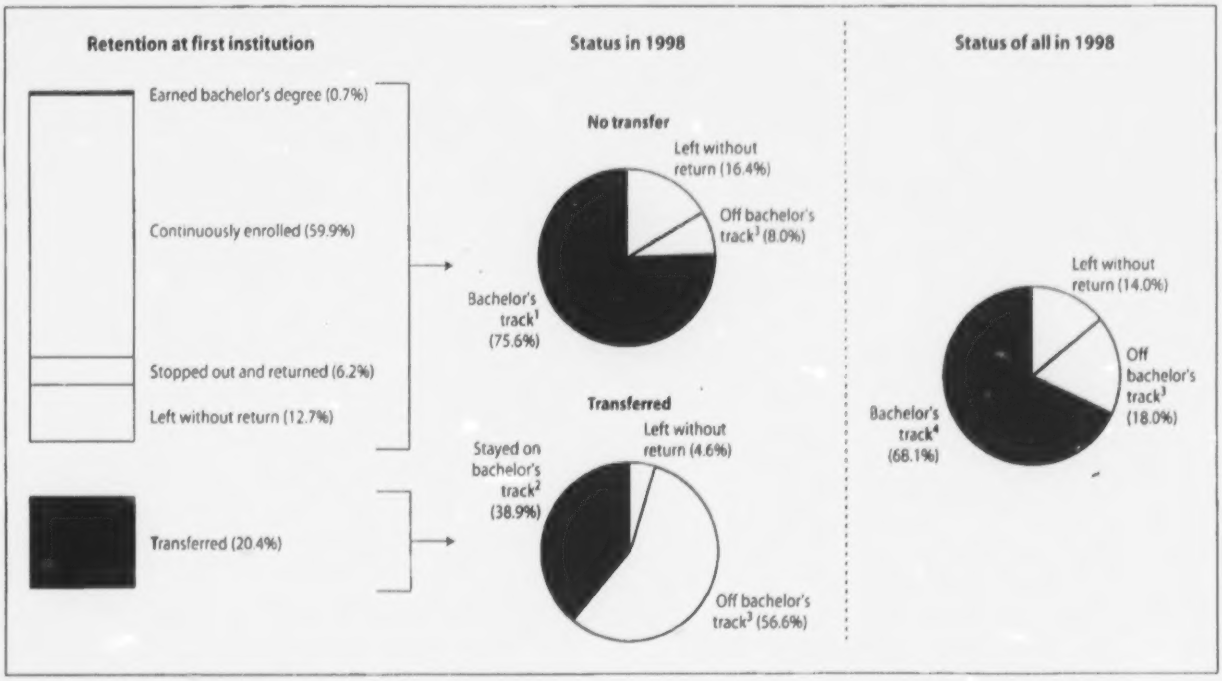
[3] Selectivity was determined by admitted students' entrance exam scores.

Figure B.—Postsecondary persistence path of 1995–96 beginning students who enrolled in 4-year institutions, 3 years after first enrollment (as of 1998)



[1] Maintained continuous enrollment in first institution or earned a bachelor's degree.

[2] Transferred to a 4-year institution with no break in enrollment.

[3] Stopped out (break of more than 4 months) and/or enrolled in a less-than-4-year institution.

[4] Maintained continuous enrollment in any 4-year institution.

NOTE: Detail may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

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The level of college students' high school curricula was strongly related to their persistence in postsecondary education. This was true both for maintaining enrollment at their initial institution (institutional retention) and, if they transferred, staying on track to a bachelor's degree.[4] For example, 79 percent of students who had participated in rigorous high school academic curricula were continuously enrolled in their initial institution (including 1 percent who had attained a bachelor's degree; figure C). In contrast, 62 percent and 55 percent, respectively, of those in mid-level curricula or core curricula or lower were continuously enrolled in their initial institution. Students in rigorous curricula also were less likely to transfer from their first institution (13 percent) than those who participated in less than rigorous curricula, whether in mid-level or core or lower curricula (23 percent of both groups transferred).

The difference between levels of academic curricula was especially notable with respect to staying on track to a bachelor's degree (i.e., continuous enrollment in any 4-year institution). As the level of academic curricula increased, so did the proportion of undergraduates who stayed on track (figure D). As of 1998, the vast majority (87 percent) of those who had participated in rigorous high school academic curricula were still on track to a bachelor's degree, compared with 71 percent of those in mid-level curricula and 62 percent of those who completed core curricula or lower. Correspondingly, the proportion of those who had left postsecondary education and did not return declined with each successive level of academic curriculum (from 17 percent to 10 percent to 4 percent).

Patterns of Transfer

The rate of transfer for those who completed no higher than a core curriculum in high school was the same as for those who completed mid-level curricula. Roughly one-quarter of these students had transferred from their first

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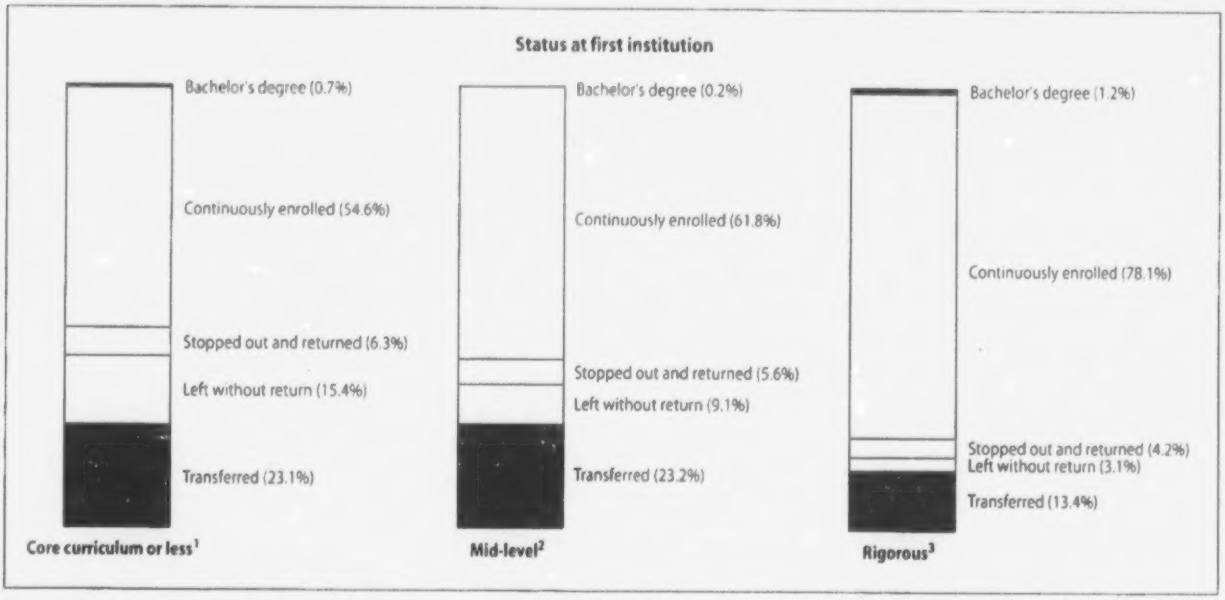
[4] The "persistence track" to a bachelor's degree is defined as maintaining uninterrupted enrollment in a 4-year institution toward a bachelor's degree objective. It includes those who transfer between 4-year institutions without a break in enrollment. The persistence track concept was first developed by Carroll (1989) to demonstrate the optimal path to a bachelor's degree and the adverse effects of straying from the path.

Figure C.—Percentage distribution of 1995–96 beginning students' 1998 enrollment status at their first institution for those who began in a 4-year institution, by high school academic curriculum



[1] Core curriculum includes 4 years of English, 3 years of social studies, 3 years of mathematics, and 3 years of science.

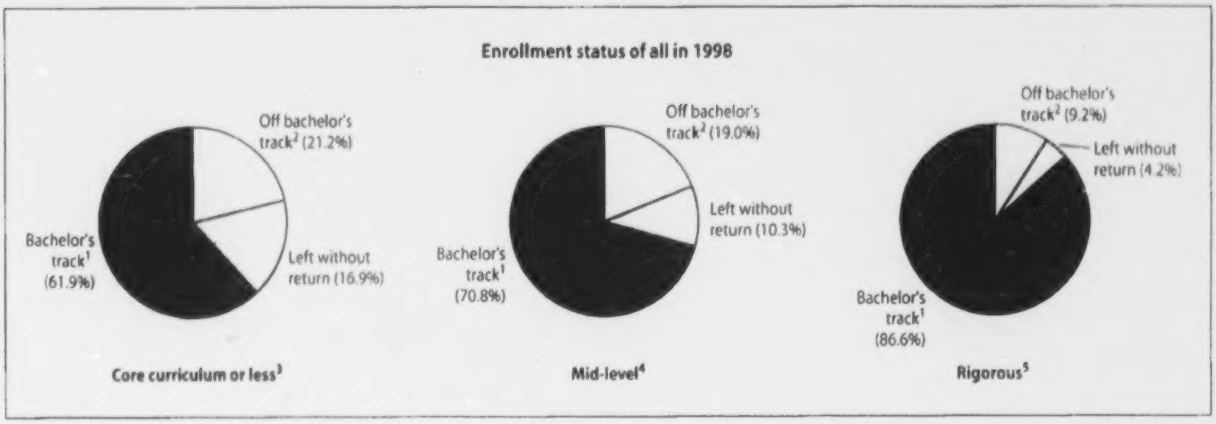
[2] Mid-level curriculum exceeds core curriculum, but is less than rigorous. Includes at a minimum 1 year of a foreign language, geometry, algebra I, and 3 years of science including two of the following courses: biology, chemistry, or physics.

[3] Rigorous curriculum includes 4 years of English, 4 years of mathematics (including precalculus or higher), 3 years of a foreign language, 3 years of social studies, 3 years of science (including biology, chemistry, and physics), and at least one Advanced Placement (AP) class or test taken.

NOTE: Detail may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

Figure D.—Enrollment status in 1998 of 1995–96 beginning students who first enrolled in 4-year institutions, by high school academic curriculum



[1] Continuously enrolled in any 4-year institution.

[2] Stopped out (break of 4 or more months) and/or enrolled in a less-than-4-year institution.

[3] Core curriculum includes 4 years of English, 3 years of social studies, 3 years of mathematics, and 3 years of science.

[4] Mid-level curriculum exceeds core curriculum, but is less than rigorous. Includes at a minimum 1 year of a foreign language, geometry, algebra I, and 3 years of science including two of the following courses: biology, chemistry, or physics.

[5] Rigorous curriculum includes 4 years of English, 4 years of mathematics (including precalculus or higher), 3 years of a foreign language, 3 years of social studies, 3 years of science (including biology, chemistry, and physics), and at least one Advanced Placement (AP) class or test taken.

NOTE: Detail may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

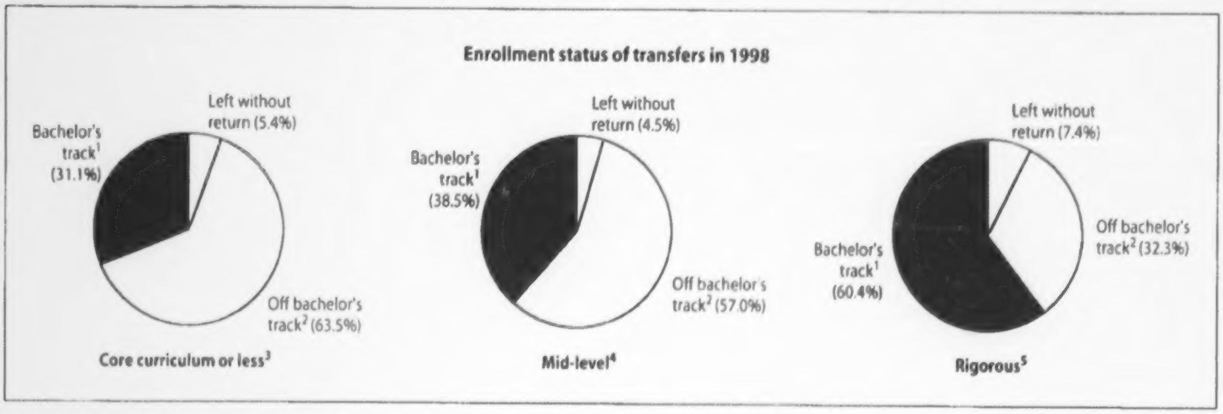
institution, while just 13 percent in rigorous high school curricula had done so (figure C). However, as shown in figure E, among students who transferred, as their level of academic curricula increased, so did the likelihood of staying on track to a bachelor's degree (i.e., they transferred to another 4-year institution without a break in enrollment). For those who had completed core curricula or lower, 31 percent of transfers stayed on the bachelor's degree track, as did 39 percent of transfers who had completed mid-level curricula and 60 percent of those who had completed rigorous high school curricula.

These differences were clearly evident when examining the destination of transfers. Staying on track to a bachelor's degree implies staying enrolled in a 4-year institution, so all transfers who stayed on track transferred to 4-year institutions. However, there were also differences across high school academic curricula with respect to the selectivity of the 4-year institutions where students transferred (table A). Among all transfers who completed rigorous high school curricula, 40 percent transferred to selective institutions, compared with just 21 percent of their counterparts who completed mid-level curricula and 17 percent who completed core curricula or lower. Correspondingly, transfers who completed rigorous curricula were much less likely to transfer either to a less-than-4-year or a for-profit institution (21 percent) than their counterparts in mid-level (40 percent) or core curricula or lower (46 percent).

Examining the selectivity of students' first institution compared with their second, the likelihood of making a lateral transfer from selective to selective institution was much higher for those completing rigorous high school curricula (49 percent) than for those completing either mid-level curricula (33 percent) or no higher than core curricula (22 percent). Similarly, the likelihood of transferring from a selective institution to a less-than-4-year or for-profit institution was much lower for those completing rigorous curricula (19 percent) than for their counterparts completing mid-level curricula (40 percent) or no higher than core curricula (47 percent).

While the patterns of transfer appear to be similar among those who began in less-selective institutions (i.e., those completing rigorous high school curricula were more likely than those in less rigorous curricula to transfer to selective institutions or to transfer laterally, and less likely to transfer to less-than-4-year or for-profit institutions), there is not enough statistical evidence to draw this conclusion.

Figure E.—For 1995-96 beginning students who transferred from a 4-year institution, percentage distribution of enrollment status in 1998 with respect to earning a bachelor's degree, by high school academic curriculum



[1] Continuously enrolled in any 4-year institution.

[2] Stopped out (break of 4 or more months) and/or enrolled in a less-than-4-year institution.

[3] Core curriculum includes 4 years of English, 3 years of social studies, 3 years of mathematics, and 3 years of science.

[4] Mid-level curriculum exceeds core curriculum, but is less than rigorous. Includes at a minimum 1 year of a foreign language, geometry, algebra I, and 3 years of science including two of the following courses: biology, chemistry, or physics.

[5] Rigorous curriculum includes 4 years of English, 4 years of mathematics (including precalculus or higher), 3 years of a foreign language, 3 years of social studies, 3 years of science (including biology, chemistry, and physics), and at least one Advanced Placement (AP) class or test taken.

NOTE: Detail may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

Transfers left postsecondary education at similar rates no matter what their high school academic curricula. As shown in figure E, 5 to 7 percent of transfers left postsecondary education altogether as of 1998.

Controlling for Related Variables

In addition to high school academic curricula, many other variables can influence postsecondary education outcomes. Therefore, it is necessary to use multivariate analysis techniques to disentangle the net influence of related variables on the outcome of interest.

In this study, covariance adjustment techniques based on simple linear regression models were used to analyze two persistence outcomes: (1) continuous enrollment at the initial institution, and (2) staying on track to a bachelor's degree. Independent variables reflected students' academic experience in high school (academic curricula and college entrance exam scores), demographic characteristics (gender, race/ethnicity, age), socioeconomic characteristics (income and parents' education), and the economic status of their high schools (the proportion of students eligible for free or reduced-price lunches). Other variables reflected students' experiences in their first year in college, including the type of postsecondary institution, full- or part-time attendance, and work status. In addition, because previous research has shown first-year grade-point average (GPA) to be a strong predictor of success in college (e.g., Pascarella and Terenzini 1991), both analyses were run twice, once without GPA, and once including GPA as an independent variable.

High school academic curricula

The results indicated a strong association between high school academic curricula and both measures of persistence. Students who participated in rigorous high school curricula were at a distinct advantage over those who completed no higher than core curricula (the comparison group). In addition, there was some evidence that completing mid-level curricula also was associated with higher rates of staying on track to a bachelor's degree when compared to completing programs no higher than core curricula. However, the difference did not reach statistical significance after adjusting for the design effect of the dependent variable.[5]

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[5] After adjusting for the design effect, the *t*-value of the coefficient was 1.90.

Table A.—Among 1995–96 beginning students who transferred from a 4-year institution, percentage distribution according to their transfer institution, by high school academic curriculum and selectivity of first institution

	Transfer destination		
	4-year institution		Less-than-4-year or for-profit 4-year
	Selective[1]	Less-selective[2]	
	All transfers from 4-year institutions		
Total	21.3	39.5	39.3
Core curriculum or less[3]	17.4	36.9	45.7
Mid-level[4]	20.9	39.0	40.1
Rigorous[5]	40.4	38.9	20.8
	Began in selective institution		
Total	34.1	30.0	35.9
Core curriculum or less[3]	21.5	31.4	47.1
Mid-level[4]	32.8	27.6	39.6
Rigorous[5]	48.5	32.4	19.1
	Began in less-selective institution		
Total	14.7	44.3	41.0
Core curriculum or less[3]	16.2	38.4	45.4
Mid-level[4]	13.3	46.2	40.5
Rigorous[5]	25.0	50.9	24.0

[1] Selective institutions are public and private not-for-profit institutions in which students' average SAT scores exceeded 1000 or Carnegie classifications in which a majority of students were enrolled in very selective institutions.

[2] Less-selective institutions are all others not identified in the selective groups.

[3] Core curriculum includes 4 years of English, 3 years of social studies, 3 years of mathematics, and 3 years of science.

[4] Mid-level curriculum exceeds core curriculum, but is less than rigorous. Includes at a minimum 1 year of a foreign language, geometry, algebra I, and 3 years of science including two of the following courses: biology, chemistry, or physics.

[5] Rigorous curriculum includes 4 years of English, 4 years of mathematics (including precalculus or higher), 3 years of a foreign language, 3 years of social studies, 3 years of science (including biology, chemistry, and physics), and at least one Advanced Placement (AP) class or test taken.

NOTE: Detail may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

SAT scores and other variables

In both persistence analyses, prior to including first-year college GPA as an independent variable, SAT composite test score levels and high school academic curriculum levels were significantly associated with the outcome. However, once GPA was taken into account, high school academic curriculum remained a significant predictor of persistence (specifically, completing a rigorous versus core or lower curriculum), but the association between levels of SAT scores and persistence disappeared. In other words, once all related variables were taken into consideration, including college GPA, entrance exam scores were no longer associated with the likelihood of persisting, either with respect to institutional retention or staying on track to a bachelor's degree.

Other variables were also significantly associated with both measures of persistence after holding related variables consistent. For example, students whose parents did not attend college were less likely to persist than those whose parents were college educated.[6] In addition, students who started college attending part time and/or working full time were less likely to persist than their counterparts, as were those who first enrolled in less-selective 4-year institutions compared with those in selective institutions.

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[6] A recent NCES report provides a detailed analysis of the experiences of "first-generation" college students—those whose parents did not attend college (Warburton, Bugarin, and Nuñez 2001).

Conclusions

The findings of this study demonstrated a consistent advantage experienced by students who completed rigorous high school curricula, and to a lesser extent by those completing mid-level curricula, over their peers completing core curricula or lower.

However, the level of high school curricula students reported completing also was related to their family background characteristics and indicators of socioeconomic status, including family income, parents' education, race/ethnicity, and the economic status of their high school's student body. All of these factors relate to whether or not students have the opportunities to participate in and complete rigorous curricula. Moreover, students' success in staying in college was also related to where they first enrolled and how well they did in their first year. Yet, even when all these factors were taken into consideration, the advantage of completing a rigorous high school academic curriculum remained.

The same was not observed for levels of SAT scores. Similar to the findings for curriculum levels, SAT scores were related to persistence when first-year college GPA was not included in the regression. However, after GPA was added, high school curriculum remained a significant factor, but SAT scores did not. These findings are consistent with recent research based on high school transcripts for a cohort of 1980 high school sophomores (Adelman 1999); this study demonstrated that high school curriculum was a stronger predictor of bachelor's degree attainment than standardized test scores or other measures of high school academic performance.

Perhaps most notable in the current study is the apparent benefit of a strong high school academic curriculum for transfer students. Students who transfer from their initial 4-year college may do so because they are struggling either academically or socially, and attempting to find a better fit in another institution. One-fifth of 1995–96 beginning undergraduates enrolled in 4-year colleges had transferred from their first institution by 1998. For these students in particular, as their level of high school academic curriculum increased, so did their likelihood of staying on track to a bachelor's degree (by transferring to another 4-year institution without a break in enrollment).

Taken together, the results suggest that completing a rigorous academic curriculum in high school may help students overcome socioeconomic disadvantages such as low family income and parents with no college experience, as well as helping those who get a poor start in college (whether academic or social) and decide to transfer.

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Data source: The NCES 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

For technical information, see the complete report:

Horn, L., and Kojaku, L.K. (2001). *High School Academic Curriculum and the Persistence Path Through College: Persistence and Transfer Behavior of Undergraduates 3 Years After Entering 4-Year Institutions* (NCES 2001-163).

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Bridging the Gap: Academic Preparation and Postsecondary Success of First-Generation Students

Edward C. Warburton, Rosio Bugarin, and Anne-Marie Nuñez

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the Beginning Postsecondary Students Longitudinal Study (BPS).

This report examines the high school preparation and postsecondary persistence of first-generation students—those students whose parents had no education beyond high school—and compares them with students whose parents went to college. Previous research has demonstrated that first-generation students exhibit different college enrollment and persistence behaviors than their counterparts whose parents have more education. Such studies found that first-generation students were less likely than their peers to complete advanced mathematics classes in high school. Even among those qualified for college, first-generation students were less likely to enroll in 4-year institutions (Horn and Nuñez 2000). Independent of other relevant demographic, enrollment, and college involvement factors, first-generation status was also found to be negatively associated with students' persistence and attainment (Nuñez and Cuccaro-Alamin 1998).

What has not been well understood, however, is the extent to which the academic preparation of first-generation students in high school affects their persistence and attainment in postsecondary education. The purpose of this report is to examine whether first-generation students who were otherwise equally prepared academically were comparable to students whose parents went to college in terms of their grade-point averages (GPAs), number of remedial courses in postsecondary education, and rates of persistence (i.e., whether they were retained at their first institution, had stayed on a persistence track toward the bachelor's degree,[1] or had attained a degree). This analysis focuses on a subset of 1995–96 beginning postsecondary students who started their postsecondary education in 4-year institutions.

High School Coursetaking

The academic rigor of students' high school curriculum[2] was strongly associated with their postsecondary GPA, with the amount of remedial coursework they took, and with their rates of persistence and attainment. As overall high school academic rigor increased, so did students' GPA. Students who did not exceed the requirements of the core New Basics curriculum had a lower GPA than did those who exceeded them (2.5 points vs. 3.1 points). The rigor of students' high school curriculum was also related to the number of remedial courses they took during their first year of postsecondary education. As the rigor of the secondary curriculum increased, the proportion of students who took one or more remedial courses decreased from 21 percent to 3 percent.

High school academic preparation was also related to students' likelihood of remaining enrolled in postsecondary education. In general, the more rigorous their high school curriculum, the more likely students were to persist (or to attain a degree) at the initial postsecondary institution in which they enrolled. While 62 percent of students who did not exceed the core New Basics requirements were still enrolled or had attained a degree as of spring 1998, 84 percent of students who exceeded the requirements did so. Likewise, the more rigorous the students' high school curriculum, the higher their likelihood of staying on the persistence track to a bachelor's degree: 87 percent of students who took rigorous academic coursework in high school stayed on the persistence track, compared with 62 percent of students who did not take such coursework. Finally, students whose curriculum was rigorous were more likely to still be enrolled and working for a degree than students who did not exceed the core New Basics requirements (93 percent vs. 75 percent).

Effect of First-Generation Status

This study found a relationship between parents' education level and the likelihood that students would undertake a more rigorous high school curriculum and, consequently, enroll, perform well, and persist in 4-year postsecondary institutions. Overall, first-generation status was shown to have a negative association with students' academic preparation and persistence.

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[1] Students' status with respect to the "persistence track to a bachelor's degree" is defined by three values: stayed on the persistence track (i.e., stayed in the same 4-year institution or made a lateral transfer to a different 4-year institution), left the persistence track ("stopped out" for more than 4 months or made an immediate or delayed downward transfer), or left postsecondary education (was neither still enrolled at the initial institution nor had transferred to another postsecondary institution).

[2] "Academic rigor" is defined by four variables that describe the overall difficulty of students' high school coursework: core New Basics or below, beyond New Basics I (somewhat exceeded core New Basics), beyond New Basics II (substantially exceeded core New Basics), and rigorous (maximally exceeded core New Basics).

Preparation for postsecondary education

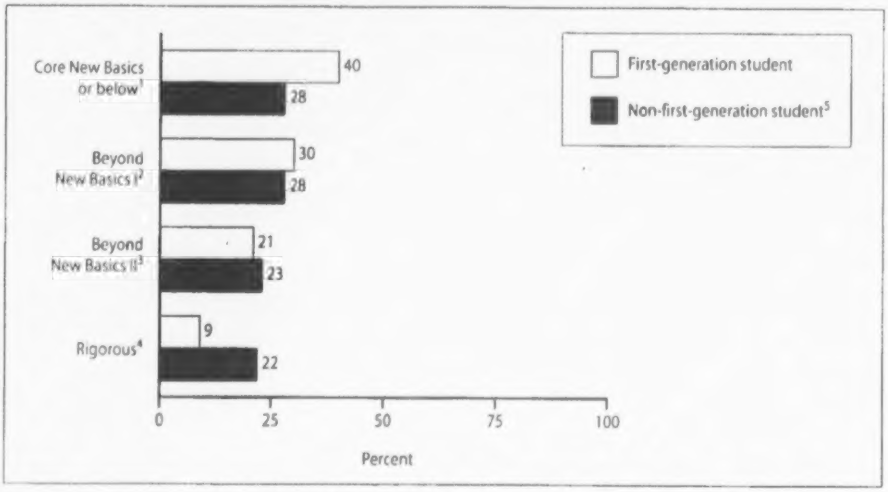
Compared with students whose parents were college graduates,[3] first-generation students were less likely to have taken calculus in high school (20 percent vs. 34 percent). A full 40 percent of first-generation students did not exceed the core New Basics curriculum (figure A). Furthermore, while about one-fifth of students whose parents had a bachelor's degree took rigorous courses in high school, just 9 percent of first-generation students did so.

First-generation students were also less likely to take college entrance examinations, and when they did, they were more likely than their peers to have lower scores. Whereas 15 percent of students whose parents were college graduates scored 790 points or lower on the SAT or ACT (i.e., the lowest quartile), almost 40 percent of first-generation students scored in this quartile. On the SAT II, first-generation students were more likely than their counterparts whose parents were college graduates to score below 550 points and less likely to score 651 points or more. Finally, a lower proportion of first-generation students reported taking any Advanced Placement (AP) tests than did both students whose parents had attended college and those whose parents had graduated (8 percent vs. 14 percent and 22 percent, respectively).

Postsecondary enrollment and performance

In this study, students' patterns of postsecondary enrollment and academic performance confirmed previous research showing differential behaviors between first-generation students and their peers whose parents were college educated. Of the students who attended 4-year institutions, first-generation students were much more likely to attend public comprehensive institutions instead of research universities than those with at least one parent who had a bachelor's degree (41 percent vs. 26 percent). More than one-quarter (27 percent) of first-generation students attended part time in the 1997–98 academic year, and these students were much more likely to work full time compared

Figure A.—Percentage distribution of 1995–96 beginning postsecondary students according to academic rigor of secondary school curriculum, by first-generation status



[1]Core New Basics curriculum includes 4 years of English, 3 years of mathematics, and 3 years of science and social studies.

[2]Beyond New Basics I includes core New Basics and at least two of three science courses (biology, chemistry, or physics), and algebra I and geometry, plus 1 year of foreign language.

[3]Beyond New Basics II includes core New Basics, advanced science (biology, chemistry, and physics), and advanced math (including algebra I, geometry, algebra II), plus 2 years of foreign language.

[4]Rigorous includes core New Basics, advanced science (biology, chemistry, and physics), and 4 years of math (including algebra I, geometry, algebra II, precalculus), plus 3 years of foreign language and one honors/Advanced Placement (AP) course or AP test score.

[5]Non-first-generation students are those whose parents had any college experience.

NOTE: Detail may not add to 100 because of rounding. Includes public and private not-for-profit 4-year institutions. Students in private for-profit 4-year institutions are excluded from this analysis because the sample size was too small (less than 1 percent).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

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[3] Whenever the term "college graduates" is used, it means that at least one parent had attained a bachelor's degree.

to students whose parents had a college degree. By the end of the 1997–98 academic year, a larger proportion of first-generation students (25 percent) had chosen business/management as their major field of study, compared with their non-first-generation counterparts (17 percent).

In general, first-generation students had lower first-year GPAs than students whose parents had a college degree (2.6 vs. 2.8) and were more likely to have taken at least one remedial course during their first year of postsecondary education (21 percent vs. 10 percent). This difference persisted even after controlling for the rigor of students' high school coursework and college entrance examination scores. Among students who substantially exceeded the core New Basics in high school, first-generation students were more likely to have taken at least one remedial course during their first year of postsecondary education than students whose parents had a college degree (15 percent vs. 6 percent). Moreover, among students whose college entrance examination scores were in the lowest quartile, 38 percent of first-generation students had taken at least one remedial course during their first year, compared with 29 percent of students whose parents had a college degree.

However, among students who took rigorous high school courses or scored in the top quartile on their college entrance examinations, first-generation students had first-year college GPAs and remedial coursetaking patterns that were not significantly different from their non-first-generation peers. For example, among students who took rigorous coursework in high school, 95 percent of first-generation students reported taking no remedial courses during their first year, compared to 96 percent of students whose parents had some college and 97 percent of students whose parents had a bachelor's degree. In addition, first-generation students' average first-year GPA was 3.0, which was no different from the average GPA (3.1) of their non-first-generation counterparts with similar academic preparation.

Postsecondary persistence and attainment

With respect to postsecondary persistence and attainment, four outcomes were examined: the number of enrollment spells,[4] retention at the initial 4-year institution, persistence track to a bachelor's degree, and attainment or last academic year of enrollment through 1998.

First-generation students were less likely to be enrolled continuously or to attain a degree at their initial postsecondary institution than students whose parents had completed college (60 percent vs. 73 percent). They were also more likely to have stopped out[5] or left their first institution of enrollment than their peers whose parents had a college degree (19 percent vs. 8 percent). These differences disappeared, however, among students who took rigorous high school courses. In this case, first-generation students were as likely as students whose parents had a college degree to be continuously enrolled or to have attained a degree as of June 1998 (87 percent vs. 86 percent) (figure B).

In this study, students who remained at the initial 4-year institution or made a lateral transfer to a new 4-year institution were considered to have stayed on the persistence track to a bachelor's degree. Overall, first-generation students were less likely than students whose parents had completed a 4-year degree to stay on the persistence track (58 percent vs. 77 percent). Not only were first-generation students more likely than their peers whose parents finished college to leave the persistence track through a stopout or downward transfer (22 percent vs. 14 percent), they also were more than twice as likely to leave their first institution without returning (21 percent vs. 9 percent). Moreover, even among students who took rigorous coursework in high school, first-generation students were almost twice as likely as students whose parents had completed college to leave the persistence track through a stopout or downward transfer (14 percent vs. 8 percent).

Though the negative relationship between first-generation status and persistence was strong and consistent, the picture was more positive when looking at those who left postsecondary education without returning, while controlling for the rigor of students' secondary school curriculum and their scores on college entrance examinations. Among those students who took a rigorous high school curriculum, first-generation students and students whose parents completed college had similar rates of postsecondary departure without return (5 percent and 3 percent). And though first-generation students who did not exceed the core New Basics in high school were less likely to stay on the persistence track to a bachelor's degree compared to their counterparts (55 percent vs. 69 percent), the likelihood of staying on the persistence track for students who took rigorous coursework did not

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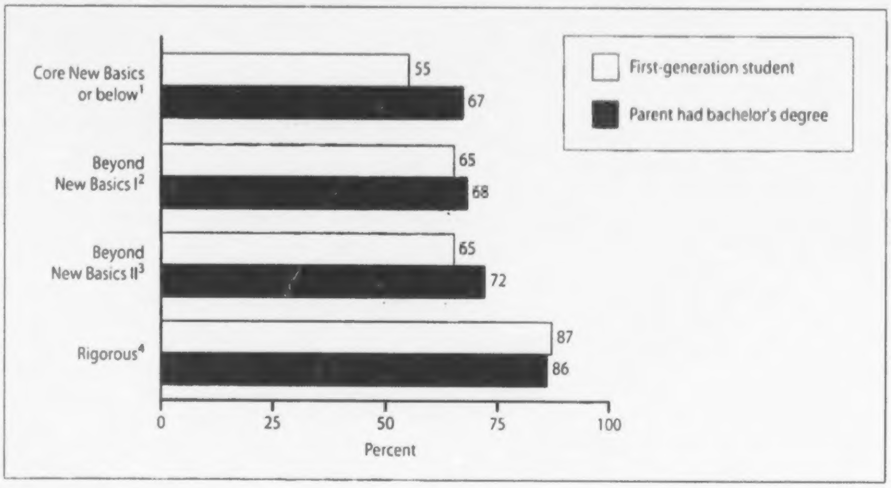
[4] An "enrollment spell" is defined as a period of enrollment without a break of more than 4 months. The number of enrollment spells counts the periods of continuous enrollment (at any institution), each separated by more than 4 months of non-enrollment, through June 1998.

[5] An enrollment spell may end either with a stopout or leaving without return. A "stopout" is defined as a break in enrollment of more than 4 months and a return to postsecondary education. Leaving without return is no enrollment for a period of more than 4 months and no return to postsecondary education as of spring 1998.

Figure B.—Percentage of 1995–96 beginning postsecondary students who were still enrolled (or had attained bachelor's degree) at initial institution according to academic rigor of secondary school curriculum, by first-generation status: June 1998



[1] Core New Basics curriculum includes 4 years of English, 3 years of mathematics, and 3 years of science and social studies.

[2] Beyond New Basics I includes core New Basics and at least two of three science courses (biology, chemistry, or physics), and algebra I and geometry, plus 1 year of foreign language.

[3] Beyond New Basics II includes core New Basics, advanced science (biology, chemistry, and physics), and advanced math (including algebra I, geometry, algebra II), plus 2 years of foreign language.

[4] Rigorous includes core New Basics, advanced science (biology, chemistry, and physics), and 4 years of math (including algebra I, geometry, algebra II, precalculus), plus 3 years of foreign language and one honors/Advanced Placement (AP) course or AP test score.

NOTE: Includes public and private not-for-profit 4-year institutions. Students in private for-profit 4-year institutions are excluded from this analysis because the sample size was too small (less than 1 percent).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

differ meaningfully for first-generation students and students whose parents had a bachelor's degree (81 and 89 percent, respectively) (figure C).

Finally, this study examined overall rates of persistence and attainment in spring 1998, 3 years after initial enrollment. Students whose parents had a bachelor's degree were more likely than their first-generation peers to have attained a degree or to still be enrolled 3 years after entering a 4-year institution (88 percent vs. 73 percent). This difference was particularly evident for first-generation students who did not take a rigorous curriculum in high school: they were much less likely than students whose parents completed college to be enrolled 3 years after entering a 4-year institution (65 percent vs. 85 percent).

Conclusion

The findings from this analysis indicate that students who were well prepared for postsecondary education were very likely to persist in 4-year institutions. Students who took rigorous coursework in high school accounted for more than 80 percent of those students who either stayed on the persistence track to a bachelor's degree or were retained at their initial institution. At the same time, parents' levels of education were found to be associated with rates of students' retention and persistence in college, even when controlling for measures of academic preparedness (such as rigor of secondary curriculum and college entrance examination scores).

These findings hold true even when other related variables are held constant. That is, even after controlling for variables such as academic preparation and postsecondary achievement, parents' education continued to be a significant factor in determining whether students were enrolled at their initial institution 3 years after entering or stayed on the persistence track. Students whose parents attained a bachelor's degree were more likely than first-generation students to remain enrolled at their initial 4-year institution. Likewise, after controlling for related variables, students whose parents attained a bachelor's degree or

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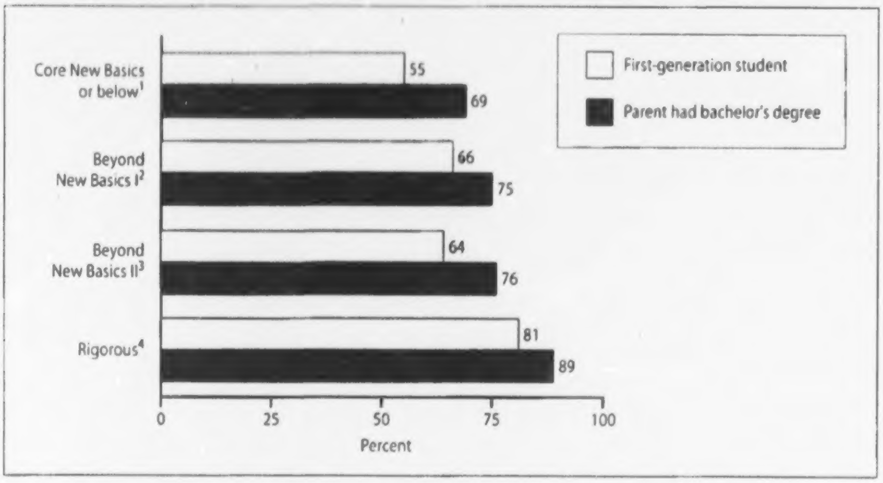
Figure C.—Percentage of 1995–96 beginning postsecondary students who stayed on persistence track to bachelor's degree according to academic rigor of secondary school curriculum, by first-generation status: June 1998



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[4] Rigorous includes core New Basics, advanced science (biology, chemistry, and physics), and 4 years of math (including algebra I, geometry, algebra II, precalculus), plus 3 years of foreign language and one honors/Advanced Placement (AP) course or AP test score.

NOTE: Students who stay on the persistence track either remain at the initial 4-year institution in which they enrolled or make a lateral transfer to a new 4-year institution with no break in enrollment. Includes public and private not-for-profit 4-year institutions. Students in private for-profit 4-year institutions are excluded from this analysis because the sample size was too small (less than 1 percent).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1996 Beginning Postsecondary Students Longitudinal Study, "First Follow-up" (BPS:96/98).

higher were more likely to stay on the persistence track to a bachelor's degree than first-generation students.

At the same time, after holding all other variables constant, students who took rigorous coursework in high school significantly increased their chances of staying on the persistence track to a bachelor's degree. Taken together, these results suggest that, while first-generation status is an important predictor of success in postsecondary education, rigorous preparation in high school substantially narrows the gap in postsecondary outcomes between first-generation students and their peers whose parents graduated from college.

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Data source: The NCES 1996 Beginning Postsecondary Students Longitudinal Study "First Follow-up" (BPS:96/98).

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Middle Income Undergraduates

Middle Income Undergraduates: Where They Enroll and How They Pay for Their Education

Jennifer B. Presley and Suzanne B. Clery

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the NCES National Postsecondary Student Aid Study (NPSAS).

The need for financial aid or other financial help, such as tuition tax credits, to assist students from middle income families to attend the college of their choice has received increased attention recently. This report provides a profile of middle income undergraduates in comparison to their lower income and higher income counterparts and examines where middle income students enroll by price of attendance and how they and their families pay for college, including the role of financial aid.

The source of data for this analysis was the 1995–96 National Postsecondary Student Aid Study (NPSAS:96). The report is limited to full-time, full-year (FTFY) dependent undergraduates who were enrolled during 1995–96.

In this report, middle income undergraduates are defined as those with family incomes between $35,000 and $69,999 in 1994, the year of the income data included in the NPSAS:96 database. Undergraduates from families with incomes below $35,000 are defined as lower income, and those from families with incomes of $70,000 or more are defined as higher income. Thirty-seven percent of FTFY dependent undergraduates in the sample were middle income according to this definition, 35 percent were lower income, and 28 percent were higher income.

Because the financing strategies that students use to pay for college vary by price of attendance, results are provided for four price-of-attendance levels: lowest price of attendance (less than $6,000), moderate price of attendance ($6,000 to $8,499), upper price of attendance ($8,500 to $15,999), and highest price of attendance ($16,000 or more). The price of attendance is the FTFY dependent undergraduate budget, which represents the total expected expenses for an FTFY dependent undergraduate to attend college in 1995–96, including tuition, fees, and nontuition expenses.

Profile of Middle Income Full-Time, Full-Year Dependent Undergraduates

Middle income FTFY dependent undergraduates in 1995–96 were 53 percent female; 81 percent White, non-Hispanic; and nearly all from families with at least three family members. About one-third were first-generation college students (i.e., their parents had no more than high school degrees as their highest level of education completed), one-quarter had parents with bachelor's degrees, 16 percent had parents with master's degrees, and 5 percent had parents with doctoral or first-professional degrees. Thirty-seven percent of middle income FTFY dependent undergraduates lived on campus, while 35 percent lived with their parents or relatives. Forty-five percent were first-year/freshmen.

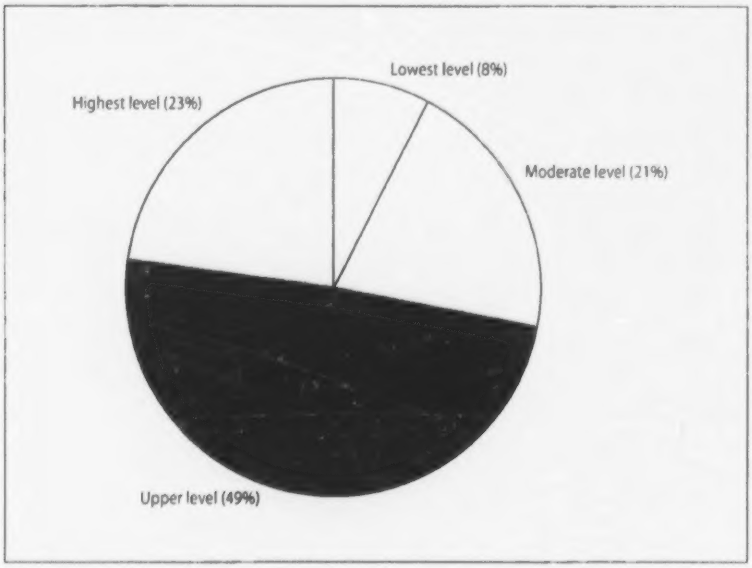
Price of Attendance

Price of attendance is the student budget for FTFY dependent undergraduates for 1995–96, including tuition and fees and total nontuition costs. Of the middle income FTFY dependent undergraduates, 8 percent were enrolled at the *lowest price-of-attendance level*, 21 percent at the *moderate price-of-attendance level*, 49 percent at the *upper price-of-attendance level*, and 23 percent at the *highest price-of-attendance level* (figure A).

The percentages of FTFY dependent undergraduates from lower income and middle income families enrolling at each price-of-attendance level were about the same, but a smaller percentage of each of these two income groups (20 and 23 percent) was enrolled at the *highest price-of-attendance level* than of the higher income group (34 percent). Middle income FTFY dependent undergraduates with mid-range combined SAT scores of 825–1,199 were less likely to be enrolled at the *highest price-of-attendance level* than were those with similar SAT scores in the higher income group. Again, the enrollment of middle income and lower income FTFY dependent undergraduates by price-of-attendance level was about the same within the same SAT range. In all three income groups, the percentages of those with SAT scores of 1,200 or more that were enrolled at the *highest price-of-attendance level* were not statistically different, standing at 54 percent overall.

Multivariate analysis showed that even after controlling for student background and family factors likely to affect enrollment at the *highest price-of-attendance level*, the percentage enrolled at this level was still lower for middle income FTFY dependent undergraduates (23 percent) than their higher income counterparts (30 percent). Factors associated with enrollment at the *highest price-of-attendance level*, in addition to family income, included being female,

Figure A.—Percentage distribution of full-time, full-year dependent undergraduates from middle income families, by price-of-attendance level: 1995–96



NOTE: Dependent undergraduates are limited to those who attended only one institution and were U.S. citizens or permanent residents. Detail may not add to 100 percent because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:96), Undergraduate Data Analysis System.

having parents whose highest level of education was a doctoral or first-professional degree, and having combined SAT scores of 1,200 or more.

Financial Need and Financial Aid

Financial need is defined as student budget minus expected family contribution (EFC). EFC is the amount that the family and the student are expected to contribute toward the price of attendance, based on formulas for calculating financial aid awards.[1] Virtually all families in the middle income group are expected to pay part of the price of attendance from their own resources. The amount that remains after subtracting EFC is the student's financial need. It is possible that even after all aid is awarded, some students will have unmet need.

In 1995–96, four out of five middle income FTFY dependent undergraduates (79 percent) had some financial need, compared with almost all of those in the lower income category (99 percent) and one-third of those in the higher income category (table A). Middle income FTFY dependent undergraduates with financial need had an average of $7,785 of financial need.

Sixty-five percent of middle income FTFY dependent undergraduates received financial aid, 55 percent having financial need and 10 percent not having financial need. Overall, middle income FTFY dependent undergraduates had 31 percent of their price of attendance covered by financial aid, and more than one-half (58 percent) had unmet need after financial aid and EFC (table A).

One-third of middle income FTFY dependent undergraduates with unmet need had not applied for financial aid. Reasons given included a belief that family income was too high (32 percent) or that the family could afford to pay (48 percent). But for those who did apply for aid, but did not have their financial need met, it could mean that they and their families were making greater financial effort to attend their institution of choice.

Net price, or the difference between price of attendance and total financial aid received, is the amount of out-of-pocket expenses that students and their families must come up with to attend the colleges in which they enroll. By

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[1] Expected family contribution (EFC) is based on dependency, family size, income, assets, and number in college. In order to calculate how much federal financial aid students can receive, federal regulations provide a methodology that assesses how much the family and the student should contribute toward the price of attendance. See Chapter 7 of the 1999–2000 *Student Financial Aid Handbook*, U.S. Department of Education, for more information (available at *http://ifap.ed.gov/IFAPWebApp/currentSFAHandbooksPag.jsp*).

Table A.—Financial status for all full-time, full-year dependent undergraduates, by family income: 1995–96

	Price of attendance at institution where enrolled	Expected family contribution (EFC) at any postsecondary institution[1,2]	Ratio of EFC to price of attendance[2]	Percent with financial need	Amount of financial need[3] for those with need	Grant aid[2]	Total loan[2]	Net price[4] for all[2]	Percent with unmet need[5]	Unmet need[5] for those with unmet need
Total	$12,663	$8,697	77	72.6%	$8,921	$2,230	$2,014	$8,113	57.6%	$4,797
Family income										
Lower income	11,715	1,617	16	98.5	10,372	3,560	2,158	5,628	86.9	4,914
Middle income	12,284	6,865	68	78.6	7,785	1,873	2,229	7,867	58.3	4,375
Higher income	14,316	19,729	162	33.1	7,198	1,078	1,557	11,462	20.9	5,745

[1] Expected family contribution (EFC) may exceed actual student budget; therefore, the average EFC reported in this table cannot be used to calculate financial need and unmet need reported in this table.

[2] Includes zero values.

[3] Student budget minus EFC.

[4] Student budget minus all aid.

[5] Student budget minus EFC minus aid.

NOTE: Dependent undergraduates are limited to those who attended only one institution and were U.S. citizens or permanent residents.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:96), Undergraduate Data Analysis System.

examining student earnings and the percentage of students with parents contributing to their college expenses, we can gain an additional perspective on how students and their families cover college expenses.

The average net price for middle income FTFY dependent undergraduates in 1995–96 was $7,867 (table A). Net price increased as price-of-attendance level increased, but average student earnings were lowest at the *highest price-of-attendance level*.

At the *lowest price-of-attendance level*, student earnings for middle income FTFY dependent undergraduates averaged $4,478, the average net price of attendance was $4,581,[2] and 84 percent of these students reported that their parents contributed to their college expenses.[3] At the *moderate price-of-attendance level*, average student earnings for middle income FTFY dependent undergraduates of $3,737 covered a considerable amount of the $5,668 net price of attendance, while 88 percent of these students reported that their parents contributed to their college expenses. The amounts of parental contributions toward the net price of attendance are not known, but the data suggest that middle income FTFY dependent undergraduates who were enrolled at the *lowest* and *moderate price-of-attendance levels* could meet or exceed the net prices of attendance with their own earnings and a modest contribution from their parents. Perhaps these students attended at the *lowest* and *moderate price-of-attendance levels* in order to reduce (but not eliminate) the amount of EFC that their parents needed to contribute, or to increase their available discretionary income, or both.

With a sizable gap between average net price ($7,632) and average student earnings ($3,419) for the 49 percent of middle income FTFY dependent undergraduates enrolled at the *upper price-of-attendance level*, 91 percent reported that their parents contributed toward expenses. EFC for middle income FTFY dependent undergraduates enrolled at this price-of-attendance level was $6,913. Thus, it appears that FTFY undergraduates attending at the *upper price-of-attendance level* can, on average, meet the net price of attendance through student earnings and parental contributions below EFC.

For the 23 percent of middle income FTFY dependent undergraduates enrolled at the *highest price-of-attendance*

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[2] Students are not expected to contribute all of their earnings for EFC or price of attendance. The actual amount contributed from earnings is not known, and some may contribute more or less than calculated for their EFC.

[3] For students and their families in the middle income group, virtually all are expected to make some contribution from their own resources toward paying for college.

level, the gap between net price and student earnings was $8,919, which is more than the average EFC of $7,024 for these undergraduates' families. In addition, student earnings for middle income FTFY dependent undergraduates at the *highest price-of-attendance level* were lower than earnings for those at other price-of-attendance levels. At the *highest price-of-attendance level*, 96 percent of parents were reported to contribute to the price of attendance. Again, we do not know the actual amounts contributed by parents, but these data suggest that parents may have contributed amounts that exceeded their EFC by several thousand dollars. This gap between net price, student earnings, and EFC may explain why a smaller percentage of middle income FTFY dependent undergraduates with mid-range SAT scores were enrolled at the *highest price-of-attendance level* in comparison to those in the higher income group, with more financial resources to meet out-of-pocket expenses. Perhaps middle income parents, on average, made additional financial effort to pay for their dependents who were among the best scholastically, but did not make additional financial effort for those who were mid-range students scholastically. Another reason may be that institutions in the *highest price-of-attendance level* may not practice need-blind admissions, but balance applicants' academic strengths with their financial aid needs, resulting in fewer enrollees with mid-range scores who have higher financial need.

Sources of Financial Aid

In 1995–96, one-half of middle income FTFY dependent undergraduates with financial need received loans, accounting for 42 percent of their aid, while 52 percent received grants, accounting for 44 percent of their aid, with work-study and other types of aid providing the remaining aid.

Institutional grants constituted the most common source of grant aid for middle income FTFY dependent undergraduates with financial need, as well as those in the higher income group. The percentages of FTFY dependent undergraduates with need who received institutional grants, as well as the average institutional awards that they received, were about the same for each family-income level. In each income category, larger percentages of FTFY dependent undergraduates with need received institutional grants if they were enrolled at the *highest price-of-attendance level*. At the *highest price-of-attendance level*, about two-thirds of those with need in the lower and middle income groups received institutional grants, compared with 46 percent of those in the higher income group. In addition, the average award was smaller for those in the higher income group. Institutional grants constituted an important component of financial aid packages that assisted in providing access at the *highest price-of-attendance level*, especially for lower and middle income undergraduates.

Overall, middle income FTFY dependent undergraduates with financial need were about as likely to borrow as their lower income counterparts, and the amounts they borrowed were about the same, but they were more likely to borrow than were their higher income counterparts. The percentage of middle income FTFY dependent undergraduates with need who borrowed was larger at each price-of-attendance level. For those with no financial need, the percentage borrowing was larger than the percentage borrowing from the higher income group.

Summary

Lower income and middle income FTFY dependent undergraduates have similar price-of-attendance enrollment patterns. Those from the lower income and middle income groups use more financial aid than do those in the higher income group. Lower income and middle income FTFY dependent students do not enroll at similar price-of-attendance levels as their counterparts in the higher income group, with the exception of those undergraduates with SAT scores of 1,200 or more.

Data source: The NCES 1995–96 National Postsecondary Student Aid Study (NPSAS:96).

For technical information, see the complete report:

Presley, J.B., and Clery, S.B. (2001). *Middle Income Undergraduates: Where They Enroll and How They Pay for Their Education* (NCES 2001–155).

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To obtain the complete report (NCES 2001–155), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Student Aid

National Postsecondary Student Aid Study: Student Financial Aid Estimates for 1999–2000

Andrew G. Malizio

This article was originally published as the Introduction and Highlights of the E.D. Tabs report of the same name. The sample survey data are from the National Postsecondary Student Aid Study (NPSAS).

Introduction

The National Postsecondary Student Aid Study (NPSAS) is a comprehensive survey that examines how students and their families pay for postsecondary education. The study includes nationally representative samples of undergraduate, graduate, and first-professional students; students attending less-than-2-year, 2-year, 4-year, and doctorate-granting institutions; and students who receive financial aid and those who do not receive aid.

This report has been prepared to provide some key estimates as policymakers, researchers, and analysts begin working on research for the next reauthorization of the Higher Education Act. It is based on information from about 50,000 undergraduates, 11,000 graduate students, and 1,000 first-professional students enrolled at approximately 1,000 postsecondary institutions during the 1999–2000 academic year. The sample represents about 16.5 million undergraduates, 2.3 million graduate students, and 330,000 first-professional students enrolled at any time between July 1, 1999, and June 30, 2000. Considerably more detail on how students finance their postsecondary education and student background characteristics will be published in subsequent reports.

Estimates in this report focus primarily on percentages of students receiving specified types of financial aid, and average amounts of specific types of financial aid received. Unless otherwise noted, all average amounts of financial aid described here and presented in the tables reflect the weighted means and are based only on the recipients of the specified types of aid. Highlights are presented separately for undergraduates and graduate and first-professional students.

Undergraduates

- Among the 16.5 million undergraduates (including full-time and part-time students) enrolled during 1999–2000, 55 percent (about 9.2 million) received some type of financial aid, averaging $6,206.
- Among aided undergraduates, 40 percent received grants only; 13 percent received loans only; 26 percent received grants and loans; 8 percent received grants, loans, and work-study; and the remaining 13 percent received other combinations of aid.

Federal aid to undergraduates

- Overall, about two out of five undergraduates (39 percent) received some type of federal aid, averaging about $5,230 (tables A and B).
- Percentages of undergraduates receiving federal aid varied depending on family income and type of institution. Among dependent students, percentages receiving federal aid ranged from 70 percent of undergraduates from families with incomes of less than $20,000 to about 25 percent of undergraduates from families with incomes of $100,000 or more. Among independent students, 66 percent of those with incomes less than $10,000 received some federal financial aid (table A).
- Percentages of undergraduates receiving federal aid ranged from 21 percent at public 2-year institutions to 80 percent at private for-profit institutions.

Institutional aid to undergraduates

- Forty-seven percent of undergraduates at private not-for-profit 4-year institutions received some institutional aid, averaging about $6,760 (tables A and B).

Title IV aid to undergraduates

- About one of every eight dependent undergraduates (13 percent) came from families with incomes less than $20,000. Among Title IV aid recipients who were dependent on their parents for financial support, 21 percent had family incomes less than $20,000. Three of every eight independent undergraduates (38 percent) who received Title IV aid had family incomes less than $10,000.
- Among undergraduates enrolled full time for the full year at one institution, about 30 percent received a federal Pell grant, averaging $2,314.
- Nearly one of every four undergraduates (23 percent) received a federally subsidized Stafford loan, averaging about $3,214.

- Among the Title IV loan recipients enrolled in private not-for-profit doctorate-granting institutions, the average loan amount was $5,161. At private not-for-profit non-doctorate-granting 4-year institutions, the average received was $5,095.
- Among the Title IV loan recipients enrolled in public doctorate-granting institutions, the average student loan amount was $4,743. At public non-doctorate-granting 4-year institutions, the average received was $4,225.
- Fifty-four percent of students enrolled in private for-profit less-than-2-year institutions received a Title IV loan; the average received was $4,879.
- Among full-time, full-year undergraduates, about 40 percent of those at public 2-year institutions, 56 percent of those at public 4-year institutions, and 67 percent of those at private not-for-profit 4-year institutions received some Title IV financial aid.

Graduate and First-Professional Students

- Among the 2.7 million graduate and first-professional students (including full-time and part-time students) enrolled during 1999–2000, about 6 of every 10 students received some financial aid, averaging $13,255. Eight of every 10 full-time, full-year students (82 percent) received some type of financial aid, averaging almost $19,600. First-professional students received an average of about $21,500 (tables C and D).

Stafford loans to graduate and first-professional students

- Overall, 29 percent of graduate and first-professional students received Stafford loans, averaging nearly $12,850. Average amounts borrowed varied considerably by degree program. About 73 percent of first-professional students took out Stafford loans, compared to 26 percent of master's degree students and 21 percent of doctoral students.

Institutional aid to graduate and first-professional students

- Overall, 27 percent of graduate and first-professional students received some institutional aid, averaging about $9,840, but this varied considerably depending on the type of program. For example, 22 percent of students in master's degree programs compared to 58 percent of students in doctoral degree programs received some institutional aid.

Employer aid to graduate and first-professional students

- About one in four master's degree students received employer aid, averaging about $3,840. About 11 percent of doctoral students and 5 percent of first-professional students received employer aid.

Data source: The NCES 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000).

For technical information, see the complete report:

Malizio, A.G. (2001). *National Postsecondary Student Aid Study: Student Financial Aid Estimates for 1999–2000* (NCES 2001–209).

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To obtain the complete report (NCES 2001–209), visit the NCES Web Site *(http://nces.ed.gov).*

Table A.—Percentage of undergraduates receiving selected types of federal, institutional, or state aid: 1999–2000

	Federal aid					Institutional aid		State aid	
	Any aid	Grants	Loans	Work-study	PLUS	Any aid	Grants	Any aid	Grants
Total	39.1	23.1	27.9	4.1	2.9	17.4	16.7	14.1	13.6
Dependency and 1998 income level									
Dependent	43.7	20.1	33.8	6.6	5.8	25.3	24.1	16.9	16.1
Less than $20,000	70.0	65.9	35.2	10.5	2.8	26.7	25.6	28.9	28.5
$20,000–39,999	56.3	43.6	37.9	9.9	4.4	28.1	26.9	26.1	25.6
$40,000–59,999	40.8	8.9	36.9	7.7	6.0	25.9	24.9	18.0	17.2
$60,000–79,999	36.9	1.4	35.4	5.3	8.2	24.2	23.2	11.1	10.1
$80,000–99,999	32.5	0.5	31.1	2.8	7.1	23.9	22.6	7.6	6.6
$100,000 or more	24.5	0.4	23.3	1.8	6.5	21.6	20.4	6.1	5.2
Independent	34.6	26.0	22.3	1.7	(†)	9.9	9.4	11.5	11.2
Less than $10,000	65.7	61.5	39.0	5.0	(†)	18.9	17.9	21.8	21.3
$10,000–19,999	51.5	38.6	32.6	1.9	(†)	13.4	12.8	17.4	17.2
$20,000–29,999	34.9	24.8	21.4	1.1	(†)	8.1	7.8	11.5	11.1
$30,000–49,999	20.3	11.6	14.6	0.7	(†)	6.4	6.1	6.8	6.6
$50,000 or more	7.8	0.2	7.7	0.1	(†)	3.9	3.8	2.5	2.3
Tuition and fees									
$1–999	15.2	13.0	4.3	0.7	0.1	7.3	7.2	6.1	6.0
$1,000–1,999	39.6	28.0	22.5	2.5	1.0	11.1	10.6	16.0	15.4
$2,000–2,999	51.0	31.5	38.0	4.0	1.7	16.3	14.9	19.6	18.5
$3,000–3,999	54.7	30.3	43.4	5.4	4.1	20.0	18.6	22.9	22.3
$4,000–4,999	58.1	30.2	48.9	6.3	5.1	20.8	19.9	22.6	21.7
$5,000–7,499	64.6	33.1	56.4	5.5	5.7	25.4	23.7	19.7	19.3
$7,500 or more	65.4	26.5	60.7	14.9	10.7	49.7	47.9	21.1	20.1
Institution type									
Public									
Less-than-2-year	25.3	23.4	6.1	0.7	0.3	4.5	4.5	6.4	5.6
2-year	20.7	17.2	7.0	1.3	0.1	7.7	7.6	10.2	9.8
4-year	46.4	24.4	38.5	4.6	3.5	18.6	17.1	17.0	16.3
Non-doctorate-granting	47.6	27.8	36.7	5.1	2.2	14.8	13.8	18.4	17.8
Doctorate-granting	45.7	22.4	39.6	4.3	4.3	20.8	19.0	16.1	15.4
Private not-for-profit									
Less-than-4-year	57.7	40.9	36.7	6.8	7.0	32.8	32.4	19.6	19.4
4-year	56.6	24.7	48.2	13.4	7.1	46.7	45.5	22.3	21.5
Non-doctorate-granting	58.1	27.2	48.2	11.7	6.6	44.0	43.1	24.5	23.7
Doctorate-granting	54.3	20.9	48.3	16.0	7.9	50.8	49.2	18.9	18.1
Private for-profit									
Less-than-2-year	80.1	64.0	54.0	0.6	3.7	6.1	3.8	4.1	4.1
2-year or more	80.4	45.6	72.4	1.1	8.6	8.0	7.8	12.9	12.2
Attendance pattern									
Full-time, full-year	56.7	30.5	43.9	8.8	5.5	31.0	29.7	23.0	22.1
Full-time, part-year	50.1	34.5	32.9	2.8	2.8	13.0	12.3	14.5	14.1
Part-time, full-year	30.0	19.1	19.2	1.8	0.9	11.3	10.7	10.7	10.3
Part-time, part-year	14.5	9.9	8.0	0.3	0.5	5.1	4.9	4.4	4.3

†Not applicable.

NOTE: Students can receive more than one type of aid. Estimates by tuition and fees categories, institution type, and attendance pattern exclude students who attended multiple institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000). (Originally published as table 3 on p. 8 of the complete report from which this article is excerpted.) Table revised October 2001.

Table B.—Average amounts of selected types of federal, institutional, or state aid received by undergraduates: 1999–2000

	Federal aid					Institutional aid		State aid	
	Any aid	Grants	Loans	Work-study	PLUS	Any aid	Grants	Any aid	Grants
Total	$5,226	$2,063	$4,643	$1,534	$7,080	$3,776	$3,722	$1,797	$1,681
Dependency and 1998 income level									
Dependent	5,237	2,133	3,999	1,470	7,082	4,610	4,556	2,106	1,957
Less than $20,000	4,882	2,591	4,015	1,410	5,342	3,186	3,138	1,960	1,911
$20,000–39,999	4,925	1,920	4,095	1,480	5,367	4,078	4,027	2,180	2,078
$40,000–59,999	5,014	1,188	3,950	1,505	6,183	4,936	4,892	2,090	1,941
$60,000–79,999	5,464	1,400	3,889	1,464	6,678	5,444	5,402	2,138	1,889
$80,000–99,999	5,828	(#)	4,002	1,522	8,488	4,889	4,859	1,982	1,674
$100,000 or more	6,582	(#)	4,058	1,449	9,789	5,211	5,113	2,373	1,867
Independent	5,214	2,012	5,584	1,774	(†)	1,717	1,662	1,361	1,298
Less than $10,000	5,509	2,279	5,443	1,662	(†)	1,920	1,868	1,537	1,475
$10,000–19,999	5,045	1,993	5,482	1,655	(†)	1,614	1,548	1,370	1,299
$20,000–29,999	4,674	1,755	5,501	2,106	(†)	1,623	1,559	1,150	1,103
$30,000–49,999	4,934	1,173	5,774	2,438	(†)	1,538	1,507	1,194	1,122
$50,000 or more	6,297	(#)	6,362	(#)	(†)	1,579	1,531	1,085	1,017
Tuition and fees									
$1–999	2,242	1,468	3,073	1,677	(#)	520	498	747	737
$1,000–1,999	3,641	1,928	3,647	1,575	4,272	1,278	1,247	1,183	1,106
$2,000–2,999	4,956	2,246	4,389	1,640	4,810	1,955	1,897	1,682	1,554
$3,000–3,999	5,587	2,366	4,654	1,419	5,820	2,440	2,345	1,826	1,725
$4,000–4,999	5,956	2,294	4,861	1,578	5,674	2,491	2,473	2,084	1,975
$5,000–7,499	6,266	2,214	5,173	1,395	5,645	3,091	3,078	2,119	2,012
$7,500 or more	7,726	2,556	5,294	1,543	8,660	7,186	7,086	3,109	2,859
Institution type									
Public									
Less-than-2-year	2,824	1,760	4,613	(#)	(#)	667	667	972	721
2-year	2,609	1,741	3,052	1,589	(#)	607	594	988	916
4-year	5,574	2,197	4,568	1,636	6,153	2,525	2,503	1,873	1,773
Non-doctorate-granting	4,912	2,131	4,226	1,600	5,119	1,837	1,784	1,651	1,538
Doctorate-granting	5,972	2,245	4,751	1,660	6,461	2,807	2,804	2,020	1,931
Private not-for-profit									
Less-than-4-year	4,780	2,091	3,943	963	5,625	2,690	2,615	2,148	2,125
4-year	6,858	2,393	5,132	1,464	8,753	6,758	6,606	2,662	2,460
Non-doctorate-granting	6,413	2,278	5,096	1,270	7,608	5,865	5,724	2,455	2,292
Doctorate-granting	7,596	2,628	5,187	1,683	10,245	7,957	7,804	3,079	2,800
Private for-profit									
Less-than-2-year	5,264	2,176	4,879	(#)	4,879	1,252	740	538	526
2-year or more	6,974	2,154	5,558	(#)	6,581	1,442	1,306	2,697	2,427
Attendance pattern									
Full-time, full-year	6,090	2,541	4,838	1,560	7,539	4,727	4,665	2,143	1,997
Full-time, part-year	4,095	1,715	3,876	1,006	5,596	2,326	2,295	1,237	1,192
Part-time, full-year	4,656	1,765	5,020	1,912	6,545	2,040	2,008	1,392	1,274
Part-time, part-year	3,208	1,103	3,994	1,423	5,594	851	797	889	853

#Too small to report.

†Not applicable.

NOTE: Average amounts shown above are for recipients of the specified aid. Students can receive more than one type of aid. Estimates by tuition and fees categories, institution type, and attendance pattern exclude students who attended multiple institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000). (Originally published as table 4 on p. 9 of the complete report from which this article is excerpted.) Table revised October 2001.

Table C.—Percentage of graduate and first-professional students receiving selected types of financial aid: 1999–2000

		Stafford loans				Institutional aid		
	Any aid	Total	Subsidized	Unsubsidized	Perkins loans	Institutional aid, any	Assistantships	Employer aid
Total	59.7	29.0	26.9	22.6	3.7	27.2	13.6	19.8
Type of graduate program								
Master's and doctoral programs	60.6	25.1	22.7	18.8	2.2	28.8	16.5	22.1
Master's degree	57.9	26.0	23.4	19.5	2.1	22.2	10.5	24.7
Doctorate	72.4	21.3	19.4	15.4	3.0	58.3	42.7	10.5
Other graduate program	36.3	12.7	10.9	8.9	0.9	12.4	2.2	21.0
Postbaccalaureate certificate	43.8	22.0	19.1	15.9	1.2	13.2	3.7	17.0
Other, including non-degree	30.5	5.6	4.6	3.6	0.7	11.8	1.0	24.2
First-professional	85.4	73.1	71.7	62.8	15.4	37.1	7.1	4.6
Institution control								
Public	55.5	23.8	22.0	16.8	2.5	28.4	17.4	17.5
Private not-for-profit	65.2	35.4	32.9	29.8	5.4	27.1	9.1	22.4
Private for-profit	70.0	46.0	41.1	43.5	1.1	5.3	1.8	35.4
Graduate program and institution type								
Master's								
Public non-doctorate-granting	43.8	19.5	17.4	12.7	1.4	12.4	4.8	20.6
Public doctorate-granting	58.8	23.4	21.2	15.8	1.3	28.8	17.7	21.5
Private non-doctorate-granting	55.3	26.0	21.9	20.2	1.6	11.3	3.5	31.3
Private doctorate-granting	63.8	31.4	29.1	26.0	3.8	24.5	7.4	27.4
Doctorate								
Public	72.1	18.2	16.8	11.8	0.7	61.4	50.9	10.7
Private not-for-profit	75.0	26.8	24.3	22.2	7.5	56.3	32.0	10.0
First-professional								
Public	87.2	77.5	76.5	62.5	17.9	37.1	7.8	3.0
Private not-for-profit	85.3	71.5	69.8	64.2	13.9	37.9	6.7	5.5
Other program								
Public non-doctorate-granting	30.6	8.2	6.7	4.2	0.7	9.2	1.1	17.7
Public doctorate-granting	37.9	12.8	10.5	8.8	0.9	15.2	3.2	22.8
Other, including for-profit	45.5	20.7	18.5	17.3	1.0	10.7	2.9	23.7
Attendance pattern								
Full-time, full-year	82.3	52.1	49.6	41.7	8.8	48.7	26.5	6.5
Full-time, part-year	61.8	31.6	28.4	24.3	2.8	27.4	16.9	10.5
Part-time, full-year	54.6	21.2	18.7	16.2	1.1	18.9	6.5	31.4
Part-time, part-year	35.8	7.6	6.4	5.4	0.3	9.3	3.0	27.7
Total 1998 income								
Less than $5,000	83.3	62.9	61.7	46.7	15.0	45.8	18.9	2.7
$5,000–9,999	79.5	56.6	55.6	41.8	9.6	45.7	24.7	5.4
$10,000–19,999	69.8	39.7	38.4	30.0	4.8	42.4	30.6	5.7
$20,000–29,999	61.2	33.1	32.0	26.2	2.7	28.0	14.8	14.3
$30,000–49,999	51.7	20.3	18.4	16.1	1.1	21.2	10.1	23.8
$50,000 or more	48.0	11.8	8.1	10.5	0.3	14.0	4.2	33.0

NOTE: "Any aid" includes all types of financial aid except aid from parents, friends, and relatives. Students can receive more than one type of aid. Although assistantships may include federal, state, or institutional dollars, all assistantships are counted both as "institutional aid" and as assistantships. NCES defines first-professional programs to include the following fields of study: dentistry, medicine, optometry, osteopathic medicine, veterinary medicine, pharmacy, podiatric medicine, chiropractic, law, and theological professions. Private master's, doctoral, and first-professional programs are private not-for-profit. All for-profit programs are included under "other program." Estimates by type of graduate program, institution control, and attendance pattern exclude students who attended multiple institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000). (Originally published as table 13 on p. 20 of the complete report from which this article is excerpted.) Table revised October 2001.

Table D.—Average amounts of selected types of aid received by graduate and first-professional students: 1999–2000

		Stafford loans				Institutional aid		
	Any aid	Total	Subsidized	Unsub-sidized	Perkins loans	Institutional aid, any	Assistant-ships	Employer aid
Total	$13,255	$12,849	$7,099	$8,067	$2,767	$9,839	$9,157	$3,546
Type of graduate program								
Master's and doctoral programs	12,160	11,426	6,706	7,175	2,459	10,918	9,505	3,852
Master's degree	10,391	11,309	6,655	7,054	2,627	7,731	7,481	3,838
Doctorate	18,466	12,059	6,983	7,860	1,952	16,320	11,676	3,998
Other graduate program	6,465	9,515	5,962	6,254	(#)	4,726	(#)	1,324
Postbaccalaureate certificate	8,700	9,912	6,114	6,357	(#)	6,572	(#)	2,101
Other, including non-degree	3,994	8,320	5,477	5,903	(#)	3,126	(#)	903
First-professional	21,505	16,428	8,042	9,945	3,081	7,221	4,981	4,847
Institution control								
Public	10,976	11,060	6,766	6,822	2,536	8,969	9,165	2,365
Private not-for-profit	16,245	14,624	7,467	9,091	2,979	11,342	9,391	4,756
Private for-profit	12,545	14,714	7,012	8,936	(#)	(#)	(#)	4,874
Graduate program and institution type								
Master's								
Public non-doctorate-granting	6,561	8,849	5,867	5,529	(#)	4,095	5,560	1,734
Public doctorate-granting	9,168	9,764	6,228	6,103	2,361	7,804	7,611	2,685
Private non-doctorate-granting	7,970	10,479	6,317	6,678	(#)	4,594	(#)	3,435
Private doctorate-granting	14,086	13,521	7,349	8,086	3,126	9,393	8,955	5,987
Doctorate								
Public	16,065	10,279	6,567	6,551	(#)	14,334	11,374	4,020
Private not-for-profit	23,332	14,422	7,448	9,265	1,954	20,632	12,756	4,292
First-professional								
Public	18,101	14,633	7,995	8,360	2,767	4,614	5,896	(#)
Private not-for-profit	24,014	17,787	8,079	11,024	3,363	9,001	4,216	5,612
Other program								
Public non-doctorate-granting	3,295	(#)	(#)	(#)	(#)	(#)	(#)	700
Public doctorate-granting	6,829	9,294	6,331	5,991	(#)	5,833	(#)	1,432
Other, including for-profit	8,793	12,396	6,672	7,672	(#)	4,153	(#)	2,934
Attendance pattern								
Full-time, full-year	19,589	14,426	7,711	8,873	2,881	12,354	9,871	6,034
Full-time, part-year	11,467	10,543	6,051	6,616	(#)	8,302	7,377	6,541
Part-time, full-year	8,631	11,390	6,472	7,418	2,052	5,998	7,844	3,738
Part-time, part-year	3,801	7,278	4,724	4,655	(#)	3,372	7,540	2,117
Total 1998 income								
Less than $5,000	18,792	14,057	7,668	8,811	2,683	8,387	5,937	(#)
$5,000–9,999	17,291	12,841	7,537	7,378	2,727	9,783	8,092	5,507
$10,000–19,999	17,249	12,669	7,288	7,423	2,558	12,805	10,791	4,533
$20,000–29,999	14,176	12,684	6,808	7,723	3,418	11,260	10,778	2,967
$30,000–49,999	10,258	11,858	6,257	7,808	(#)	9,021	8,981	2,798
$50,000 or more	7,806	12,394	6,242	9,081	(#)	7,007	7,879	3,728

#Too small to report.

NOTE: Average amounts shown above are for recipients of the specified aid. "Any aid" includes all types of financial aid except aid from parents, friends, and relatives. Students can receive more than one type of aid. Although assistantships may include federal, state, or institutional dollars, all assistantships are counted both as "institutional aid" and as assistantships. NCES defines first-professional programs to include the following fields of study: dentistry, medicine, optometry, osteopathic medicine, veterinary medicine, pharmacy, podiatric medicine, chiropractic, law, and theological professions. Private master's, doctoral, and first-professional programs are private not-for-profit. All for-profit programs are included under "other program." Estimates by type of graduate program, institution control, and attendance pattern exclude students who attended multiple institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000). (Originally published as table 14 on p. 21 of the complete report from which this article is excerpted.) Table revised October 2001.

Competing Choices: Men's and Women's Paths After Earning a Bachelor's Degree

Michael S. Clune, Anne-Marie Nuñez, and Susan P. Choy

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from the Baccalaureate and Beyond Longitudinal Study (B&B).

During the last 30 years, women have made great strides in educational attainment, particularly in participating in postsecondary education, where they not only enroll and attain at higher rates than men but also do better academically and have higher educational expectations, on average (National Center for Education Statistics 2000; Berkner, McCormick, and Cuccaro-Alamin 1996; McCormick et al. 1999). However, the superior performance of women at the undergraduate level has not translated into greater enrollment than males at the graduate level or enrollment rates equal to males in all types of graduate programs (McCormick et al. 1999).

At the same time that young adults are making decisions about graduate study and employment after earning their bachelor's degree, many are also facing choices about marriage and parenthood. These latter life transitions may play a greater role in women's decisions about schooling and employment at this juncture because women generally marry and have children at younger ages than do men. Thus, choices about getting married and having children may compete with choices about employment and graduate study more for women than for men. This report aims to provide a context for understanding the paths that women and men take toward graduate degrees, employment, marriage, and parenthood during the first 4 years after earning their bachelor's degree. In particular, the analysis seeks to identify how these behaviors are interrelated.

This analysis draws upon data from the 1993 Baccalaureate and Beyond Longitudinal Study (B&B:93/97), which identified students who received their bachelor's degree during academic year 1992–93. The analysis also used follow-up surveys conducted in 1994 and 1997 to trace changes in employment and graduate enrollment, along with changes in marital status and entry into parenthood. In order to obtain complete information about graduates' paths 4 years after degree receipt, this analysis was limited to graduates who responded to the second follow-up survey in 1997. The findings of the report are summarized below.

Gender Differences

Women's and men's characteristics and experiences differed both at the time they received their bachelor's degree and during the next 4 years.

Characteristics at bachelor's degree receipt

Among 1992–93 bachelor's degree recipients, women differed from men on a number of characteristics, including age, marital and parenthood status, undergraduate major, grade-point average (GPA), and educational aspirations. Compared with men, women were more likely to be under age 23 (51 percent vs. 42 percent) or over age 29 (19 percent vs. 13 percent). They were also more likely than men to have married (29 percent vs. 24 percent) and to have children (16 percent vs. 12 percent) by the time they graduated.

With respect to their undergraduate experiences, women were more likely than men to major in certain fields, most notably education (18 percent vs. 6 percent) and health professions (10 percent vs. 4 percent). Men, in contrast, were more likely than women to major in business and management (26 percent vs. 19 percent) and engineering (12 percent vs. 2 percent). Women graduated with higher GPAs than men: 61 percent of women had GPAs of 3.0 or higher, compared with 49 percent of men.

Finally, at the time they earned their bachelor's degree, women were more likely than men to expect to earn a graduate degree (87 percent vs. 83 percent). Marital status as well as gender was related to educational plans, with single[1] women being more likely to expect to earn a graduate degree (89 percent) than married women (83 percent) and both married and single men (82 percent and 84 percent, respectively). Among those expecting to earn a graduate degree, married women were less likely than single women and both married and single men to expect to earn a first-professional or doctoral degree (figure A).

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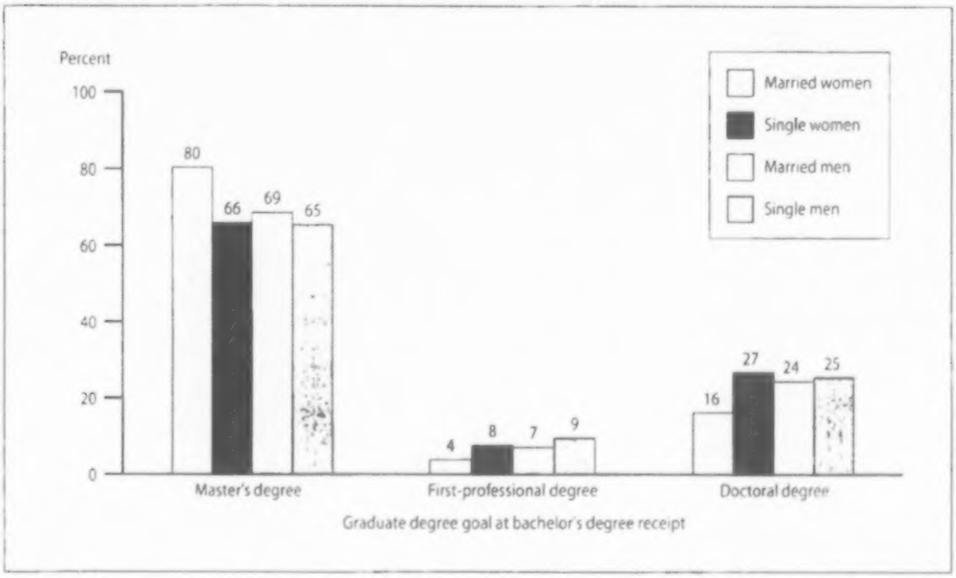
[1] Throughout the report, "single" refers to individuals who have never been married.

Figure A.—Among 1992-93 bachelor's degree recipients who expected to earn a graduate degree, percentage distribution according to degree expected at the time of bachelor's degree receipt, by marital status and gender



NOTE: Percentages may not add to 100 because of rounding. "Single" means never been married; "married" means married at time of bachelor's degree receipt.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, "Second Follow-up" (B&B:93/97), Data Analysis System.

Experiences after graduation

During the first 4 years after graduation, women and men had different experiences with respect to marriage, parenthood, graduate enrollment, graduate attainment, and employment. Among those who had not married by the time they graduated, women were more likely than men to have married within 4 years (32 percent vs. 28 percent) (figure B).

Entry into parenthood occurred at lower rates than marriage. Within 4 years, 13 percent of bachelor's degree recipients who were not parents at graduation became parents. As with marriage, women were more likely than men to make this transition (15 percent vs. 11 percent).

After 4 years, 29 percent of bachelor's degree recipients had enrolled in a graduate degree program. While women and men were equally likely to enroll, women were more likely to enroll in master's degree programs and men were more likely to enroll in first-professional and doctoral programs (figure C).

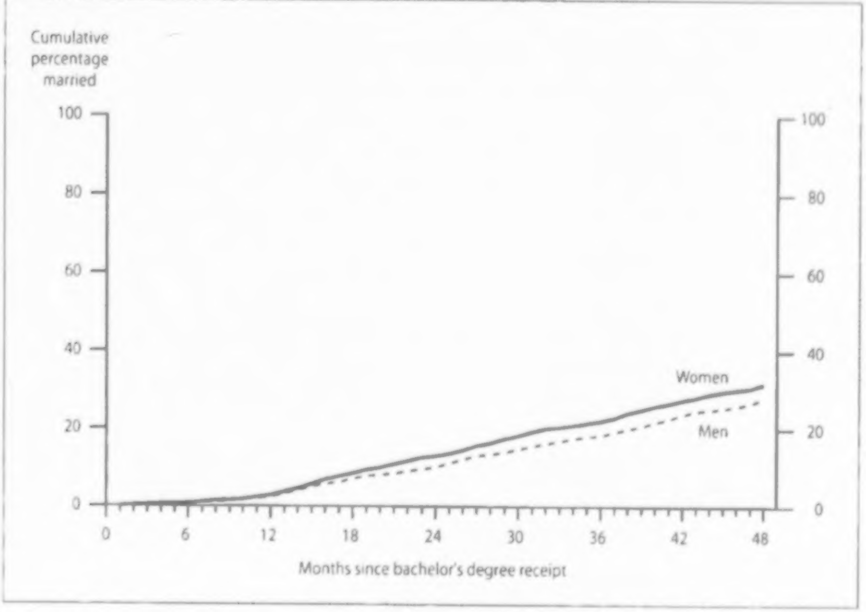
Fifteen percent of the 1992–93 bachelor's degree recipients earned a graduate degree within 4 years. While women and men were about equally likely to earn a graduate degree within this time frame (16 percent and 15 percent, respectively), among those who did, men were more likely to earn a first-professional or doctoral degree. Among those who earned a graduate degree, 13 percent of women and 23 percent of men earned a first-professional or doctoral degree.

Women and men were about equally likely to be employed during the first 4 years after earning their bachelor's degree, but among those working, men were more likely to be employed full time. For example, 2 years after graduation, 84 percent of women and 86 percent of men were employed; however, 92 percent of employed men were working full time, compared with 87 percent of employed women.

Age, major, and grade-point average

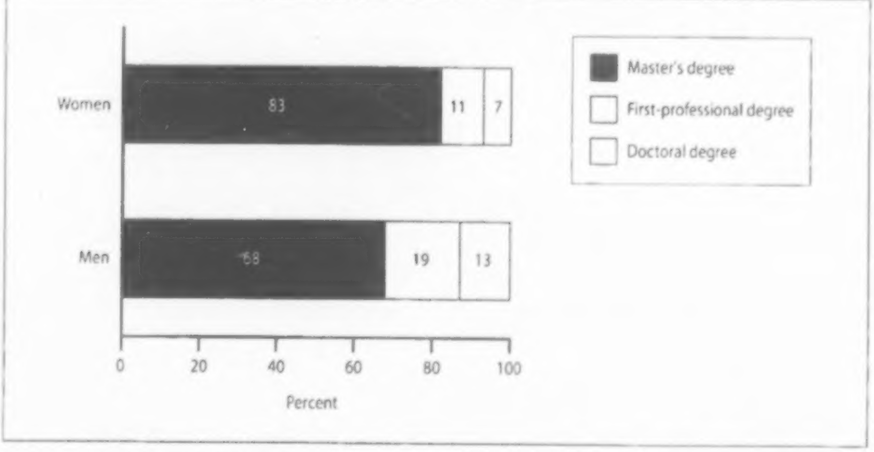
In addition to gender, several other characteristics of bachelor's degree recipients were related to their patterns of marriage, parenthood, graduate enrollment and attainment, and employment. These characteristics include age at graduation, undergraduate field of study, and undergraduate GPA.

Figure B.—Among 1992–93 bachelor's degree recipients who at the time of graduation had never been married, cumulative percentage married each month for the next 4 years, by gender



SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, "Second Follow-up" (B&B:93/97), Data Analysis System.

Figure C.—Among 1992–93 bachelor's degree recipients who enrolled in a graduate degree program within 4 years of graduation, percentage distribution by highest level of enrollment, by gender



NOTE: Percentages may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 Baccalaureate and Beyond Longitudinal Study, "Second Follow-up" (B&B:93/97), Data Analysis System.

First, older graduates were more likely to have married before earning their bachelor's degree. Among women who had not married by the time they graduated, women under 30 were more likely than women who were older to marry within the next 4 years. For both men and women, those ages 25–29 at graduation were more likely than those in other age groups to become parents within 4 years of graduation. Age was a factor for graduate enrollment as well, with both men and women who were age 22 or younger when they earned their bachelor's degree more likely than older graduates to enter graduate school within 4 years after graduation.

Second, graduates who majored in professional fields[2] as a group were more likely to be married and to have children before graduating, compared with graduates who majored in the arts and sciences. Those majoring in the arts and sciences were more likely than those in professional fields to enroll in a graduate program. Probably due to their higher levels of graduate enrollment, bachelor's degree recipients who majored in the arts and sciences were less likely to be employed during the first 4 years following graduation.

Finally, graduates with higher GPAs were more likely to be married and have children before graduating. Those with higher GPAs were also more likely to enroll in a graduate program, enroll in a first-professional or doctoral program, and attain a graduate degree within 4 years of bachelor's degree receipt.

Interrelationships Among Transitions

In general, marriage, parenthood, graduate enrollment and attainment, and employment appeared to have different interrelationships for women and men.

Marriage

Graduate enrollment and marriage were negatively related for women, but not for men. Thirty-three percent of women who did not enroll in a graduate program within 4 years of bachelor's degree receipt married during that period, compared with 29 percent of those who did enroll. In contrast, the marriage rate for men was about the same whether they enrolled (27 percent) or not (29 percent).

Parenthood

Graduate enrollment and parenthood were negatively related for both men and women: 12 percent of men and 16 percent of women who did not enroll in a graduate program within 4 years of bachelor's degree receipt became parents during that time. In contrast, 9 percent of men and 10 percent of women who enrolled did so. Women who enrolled in first-professional or doctoral programs were less likely to marry and become parents than were those who enrolled in master's programs.

Graduate school enrollment and attainment

Marriage and parenthood are more related to graduate outcomes for women than for men. Compared with women who did not marry before earning their bachelor's degree, women who did marry before earning their bachelor's degree were less likely to enroll in a graduate program or to enroll in a first-professional or doctoral degree program. Similarly, women who married before graduation were less likely to attain a graduate degree, and, among those who attained, less likely to attain a first-professional or doctoral degree. Similar consistent negative links to graduate enrollment and attainment were observed among women who became parents after graduation.

Among men, marriage before earning a bachelor's degree was related to a lower rate of enrollment in graduate school, but marriage within the next 4 years was not related to the rate of enrollment. In addition, marriage after graduation was not related to the type of degree program chosen. Among men who enrolled, neither marriage nor parenthood was related to men's graduate degree attainment.

Employment

While men and women were about equally likely to be employed after earning their bachelor's degree, differences existed according to marital and parenthood status. Among those who married before graduating, women were generally less likely than men to work after graduating. In contrast, among graduates who did not marry within 4 years of graduating, women were generally more likely than men to be employed. Parenthood negatively affected women's employment: women who became parents either before or within 4 years after graduating were less likely than men to work.

Effects of Marriage and Parenthood on Graduate Enrollment After Controlling for Other Variables

For this report, multivariate analyses were conducted to examine the net effects of parenthood and marriage on enrolling in a graduate degree program after taking into account variables other than gender that might be related to graduate enrollment—such as age, race/ethnicity, parents' education, and undergraduate education (control and level of institution, major, and GPA). Analyses were conducted for women and men separately.

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[2] Business and management, education, engineering, health professions, and public affairs/social services.

For women, marriage before bachelor's degree receipt was negatively related to graduate enrollment. After controlling for other characteristics, 23 percent of women who married before receiving their bachelor's degree enrolled in graduate school, compared with 33 percent of women who had not yet married 4 years after earning their bachelor's degree. Marriage was not significantly related to graduate enrollment for men, however, after controlling for other characteristics.

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Data source: The NCES 1993 Baccalaureate and Beyond Longitudinal Study (B&B:93/97).

For technical information, see the complete report:

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To obtain the complete report (NCES 2001–154), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

Postsecondary Institutions

Postsecondary Institutions in the United States: 1993–94 and 1998–99

Patricia Q. Brown

This article was originally published as the Summary of the E.D. Tabs report of the same name. The sample survey data are from the Integrated Postsecondary Education Data System "Institutional Characteristics Survey" (IPEDS-IC).

Introduction

This report presents detailed tabulations for the 1998–99 academic year that describe characteristics of the 9,653 postsecondary education institutions in the United States (50 states and the District of Columbia) and outlying areas (table A).[1] These characteristics include tuition and required fees for undergraduate, graduate, and first-professional programs and room and board charges at institutions providing these accommodations. Data are from the "Institutional Characteristics Survey," a component of the Integrated Postsecondary Education Data System (IPEDS) of the U.S. Department of Education's National Center for Education Statistics (NCES). This report also provides a comparison between 1993–94 and 1998–99 tuition, required fees, and room and board charges for the 50 states and the District of Columbia.

Postsecondary education is the provision of a formal instructional program whose curriculum is designed primarily for students who are beyond the compulsory age for high school. This includes programs whose purpose is academic, vocational, and continuing professional education, and excludes avocational (leisure) and adult basic education programs. For the 1998–99 academic year, 9,485 institutions in the 50 states and the District of Columbia and 168 in the outlying areas fit the IPEDS definition (table A). IPEDS attempts every year to identify institutions that should be included in the universe. Because of the changing nature of the postsecondary education enterprise ("births" and "deaths" of institutions), there may be more than the 9,653 postsecondary institutions currently identified in IPEDS.

In 1998–99, IPEDS collected data from over 9,600 postsecondary institutions, with more than 6,500, or 68 percent, of the institutions having a Program Participation Agreement (PPA) with the Department of Education and thus eligible to participate in Title IV programs. Title IV of the Higher Education Act of 1965 (as amended) established federal financial aid programs (e.g., Pell Grants, Stafford Loans) for students attending postsecondary institutions. Students attending institutions with a PPA may be eligible either to receive Title IV funds or to defer repayment of their loans.

Table A.—The number of postsecondary institutions, by degree-granting status, Title IV participation, and control of institution: 50 states, District of Columbia, and outlying areas, academic year 1998–99

	Total	Public	Private not-for-profit	Private for-profit
50 states and DC	9,485	2,245	2,777	4,463
Degree-granting	4,500	1,698	2,043	759
Non-degree-granting	4,985	547	734	3,704
Title IV participating	6,431	2,090	1,986	2,355
Non-Title IV participating	3,054	155	791	2,108
Outlying areas	168	34	51	83
Degree-granting	91	32	42	17
Non-degree-granting	77	2	9	66
Title IV participating	142	26	43	73
Non-Title IV participating	26	8	8	10

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1998 Integrated Postsecondary Education Data System, "Institutional Characteristics Survey" (IPEDS-IC:98–99).

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[1] The outlying areas include American Samoa, the Federated States of Micronesia, Guam, the Marshall Islands, Palau, Puerto Rico, and the Virgin Islands.

The IPEDS universe also classifies institutions by degree-granting status. Institutions are considered degree-granting if they offer at least one associate's or higher degree. In 1998–99, almost 4,600, or 48 percent, of all IPEDS institutions granted degrees. Forty-three percent of the postsecondary institutions in IPEDS were Title IV participating and degree-granting in the 50 states, the District of Columbia, and outlying areas.

While this summary focuses on all postsecondary institutions, many of the tables presented in the complete report provide information on the subsets of 6,431 Title IV participating and 4,500 degree-granting institutions in the 50 states and the District of Columbia.

Tuition and Required Fees at Postsecondary Institutions

The tuition and required fees discussed in this report represent all responding institutions that offer either undergraduate, graduate, or first-professional programs[2] and enroll full-time students. The nonresponding institutions and institutions that report tuition and fees by program only are not included in this report. It is important to note that tuition and required fees do not represent the total cost to attend college. Excluded are costs for books and supplies, social activities, and room and board.

Public institutions

In 1998–99, there were 2,279 public postsecondary institutions in the 50 states, District of Columbia, and outlying areas (table A). Of the 2,279 institutions, 645 offered bachelor's or higher degrees, while 1,269 offered programs of at least 2 but less than 4 years' duration. Of the responding 4-year institutions, 596 institutions in the 50 states and the District of Columbia reported tuition and required fees averaging $3,186 for full-time, full-year[3] undergraduate in-state students in 1998–99 (table B). The median charge was $2,998 for undergraduate in-state students. The public 4-year institutions continued to charge lower tuition and required fees for students attending schools in states where they were legal residents. The full-time, full-year out-of-

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[2] The first-professional programs consist of Chiropractic; Dentistry; Law; Medicine; Optometry; Osteopathic Medicine; Pharmacy; Podiatry; Theology; and Veterinary Medicine.

[3] Full-year is an academic year, the period of time generally extending from September to June, usually equated to two semesters or trimesters, three quarters, or the period covered by a 4-1-4 plan.

Table B.—Average institutional charges for tuition and required fees for full-time, full-year students at all postsecondary institutions, by level and control of institution: 50 states and the District of Columbia, academic year 1998–99

		4 years and above			2 but less than 4 years			Less than 2 years
			Private			Private		
Item	Total	Public	Not-for-profit	For-profit	Public	Not-for-profit	For-profit	Public
Undergraduate tuition and required fees (in-state)								
Number of institutions responding	4,277	596	1,347	166	1,173	336	501	158
Mean charge	$6,180	$3,186	$11,229	$8,194	$1,697	$5,489	$7,528	$2,809
Median charge	$4,628	$2,998	$11,173	$7,502	$1,430	$5,600	$7,301	$2,078
Undergraduate tuition and required fees (out-of-state)								
Number of institutions responding	4,277	596	1,347	166	1,173	336	501	158
Mean charge	$7,561	$8,248	$11,246	$8,194	$4,006	$5,631	$7,529	$3,479
Median charge	$6,740	$8,300	$11,180	$7,502	$3,884	$5,728	$7,301	$3,000
Graduate tuition and required fees (in-state)								
Number of institutions responding	1,653	511	1,035	107	(†)	(†)	(†)	(†)
Mean charge	$7,076	$3,555	$8,609	$9,059	(†)	(†)	(†)	(†)
Median charge	$5,825	$3,248	$7,614	$7,440	(†)	(†)	(†)	(†)
Graduate tuition and required fees (out-of-state)								
Number of institutions responding	1,653	511	1,035	107	(†)	(†)	(†)	(†)
Mean charge	$8,555	$8,310	$8,623	$9,059	(†)	(†)	(†)	(†)
Median charge	$7,700	$8,046	$7,630	$7,440	(†)	(†)	(†)	(†)

†Not applicable.

NOTE: Mean and median charges are calculated using institutions as the unit of analysis, not students. Undergraduate tuition represents all responding institutions that offer undergraduate programs and have full-time undergraduate students. Graduate tuition represents all responding institutions that offer graduate programs and have full-time graduate students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1998 Integrated Postsecondary Education Data System, "Institutional Characteristics Survey" (IPEDS–IC:98–99).

state undergraduate students at these same institutions paid an average of $8,248 for tuition and required fees. The full-time, full-year graduate tuition and required fees averaged $3,555 for in-state and $8,310 for out-of-state students at the 511 responding public 4-year institutions.

The 1,173 responding public 2-year institutions reported that in-state students attending their institutions were charged an average of $1,697 for tuition and required fees (table B). Out-of-state students attending these same institutions were charged an average of $4,006, a difference of $2,309. There were 158 responding less-than-2-year institutions, with average tuition and fees for in-state students of $2,809 for 1998–99, compared to $3,479 for out-of-state students.

Private institutions

For the purpose of IPEDS, private institutions are defined as educational institutions controlled by a private individual(s) or by a nongovernmental agency, usually supported primarily by other than public funds and operated by other than publicly elected or appointed officials. There are two types of private institutions in IPEDS: for-profit and not-for-profit. This report discusses these two types of institutions separately.

The charge for full-time, full-year undergraduate students to attend 4-year private not-for-profit institutions in 1998–99 averaged $11,229 for tuition and required fees (table B). Since very few private institutions charge different out-of-state tuition, the charge for out-of-state undergraduates averaged $11,246, just $17 more than the charge for in-state students. The median charge was $11,173 for in-state and $11,180 for out-of-state undergraduate students, only a $7 difference. The median charge for out-of-state graduate students was higher at public institutions ($8,046) than at private not-for-profit institutions ($7,630) or private for-profit institutions ($7,440). In fact, the median charge for out-of-state graduate students at private for-profit institutions was more than $600 lower than at public institutions, and the median charge was more than $400 lower at private not-for-profit institutions than at public institutions.

Room and Board Charges

The room charges are reported by academic year for rooming accommodations for a typical student sharing a room with one other student. In 1998–99, 433 public 4-year institutions in the 50 states and the District of Columbia reported an average of $2,338 for room charges to students and 176 public 2-year institutions reported an average of $1,395 (table C). The 21 private for-profit 4-year institutions that reported offering dormitory facilities charged an average of $3,531. Over 1,000 private not-for-profit institutions reported having dormitory facilities, with an average charge of $2,599 at 4-year institutions and $1,918 at 2-year institutions.

The board charges are reported for an academic year for a specified number of meals per week. Of the responding institutions, 1,457 indicated they offer meals (table C). The

Table C.—Average institutional charges for room and board for full-time, full-year students at all postsecondary institutions, by level and control of institution: 50 states and the District of Columbia, academic year 1998–99

		4 years and above			2 but less than 4 years			Less than 2 years
			Private			Private		
Item	Total	Public	Not-for-profit	For-profit	Public	Not-for-profit	For-profit	Public
Dormitory facilities								
Number providing facilities	1,763	433	987	21	176	98	46	2
Mean charge	$2,400	$2,338	$2,599	$3,531	$1,395	$1,918	$3,082	$1,920
Median charge	$2,228	$2,190	$2,400	$3,792	$1,240	$1,800	$3,230	$1,920
Meal plans								
Number providing facilities	1,457	403	853	7	144	39	9	2
Mean charge	$2,150	$1,934	$2,363	$1,854	$1,612	$1,831	$2,000	$1,408
Median charge	$2,160	$1,930	$2,400	$1,600	$1,588	$2,000	$1,884	$1,408
Mean meals per week	18	18	19	14	17	19	15	19
Median meals per week	19	19	19	15	19	20	15	19

NOTE: Mean and median charges are calculated using institutions as the unit of analysis, not students.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1998 Integrated Postsecondary Education Data System, "Institutional Characteristics Survey" (IPEDS-IC:98–99).

average charge for all institutions offering meal plans was $2,150 for an average of 18 meals per week. Charges for a student attending a 4-year private not-for-profit institution were an average of $2,363 for 19 meals per week.

Changes in Institutional Charges From 1993–94 to 1998–99

Between 1993–94 and 1998–99, there was a 33 percent increase (from $4,647 to $6,180) in the average charge of undergraduate tuition and required fees for in-state students at postsecondary institutions (table D). In 1998–99, in-state undergraduate students at public 4-year institutions paid an average of $3,186 for tuition and required fees, a 29 percent rise from 1993–94, when the average was $2,479. Although the average tuition and fees charged by public 4-year institutions increased, the rate of increase was slightly less than that for private 4-year institutions. The in-state undergraduate students at private not-for-profit 4-year institutions paid an average of $11,229 in 1998–99, up 33 percent from $8,419 in 1993–94, and students attending for-profit 4-year institutions paid 30 percent more in 1998–99.

The largest increase impacting the in-state undergraduate tuition and required fees was at 2-year private not-for-profit institutions. The in-state students attending these institutions in 1998–99 paid an average of 51 percent more than those who attended in 1993–94 ($5,489 vs. $3,624). The median charge at these institutions rose 87 percent from 1993–94 to 1998–99 ($3,000 to $5,600).

Tuition and fees for in-state graduate students increased 31 percent over the 5-year period, from an average of $5,417 in 1993–94 to $7,076 in 1998–99. The for-profit institutions reported the largest increase, 43 percent during this period.

Changes in Room and Board Charges From 1993–94 to 1998–99

The average dormitory charge for students attending postsecondary institutions showed a 28 percent increase over the 5-year period ($1,873 vs. $2,400) (table E). The private for-profit 4-year institutions reported an average increase of 27 percent and a median increase of 41 percent from 1993–94 to 1998–99 for dormitory charges for all students. The private 4-year not-for-profit institutions reported an average charge of $2,037 in 1993–94 and $2,599 in 1998–99, a 28 percent increase over this period.

Postsecondary institutions reported an average charge of $2,150 for meal plans at their institutions in 1998–99. This was 17 percent higher than the charges assessed in 1993–94, when the average charge was $1,835 for meal plans. The public 4-year institutions charged an average of $1,622 for meal plans in 1993–94, which increased 19 percent to $1,934 in 1998–99. The average charge for meal plans at public 2-year institutions was $1,612 in 1998–99, up 10 percent from $1,463 in 1993–94 (table E).

Overall Changes From 1993–94 to 1998–99

Over the 5-year period from 1993–94 to 1998–99, the average total institutional charges (tuition, required fees, room and board) for an undergraduate student to attend college increased 25 percent at public 4-year institutions ($5,969 to $7,458) for those paying in-state tuition. The average total institutional charges for out-of-state students increased 27 percent during this same period ($9,856 to $12,520). At private institutions, the average total price for undergraduates increased 30 percent at 4-year not-for-profit institutions ($12,482 to $16,191) and approximately 29 percent[a] at 4-year for-profit institutions.

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[a] Percent change based on tuition, fees, and room; no board charges are available.

Data source: The NCES 1993 and 1998 Integrated Postsecondary Education Data System, "Institutional Characteristics Survey" (IPEDS-IC:93–94 and 98–99).

For technical information, see the complete report:

Brown, P.Q. (2001). *Postsecondary Institutions in the United States: 1993–94 and 1998–99* (NCES 2001–176).

Author affiliation: P.Q. Brown, NCES.

For questions about content, contact Patricia Q. Brown *(patricia.brown@ed.gov).*

To obtain the complete report (NCES 2001–176), visit the NCES Web Site *(http://nces.ed.gov).*

Table D.—Average institutional charges for tuition and required fees for full-time, full-year students at all postsecondary institutions, by level and control of institution: 50 states and the District of Columbia, academic years 1993–94 and 1998–99

Item		Total	4 years and above			2 but less than 4 years			Less than 2 years
				Private			Private		
			Public	Not-for-profit	For-profit	Public	Not-for-profit	For-profit	Public
Undergraduate tuition and required fees (in-state)									
Mean charge	1993–94	$4,647	$2,479	$8,419	$6,296	$1,372	$3,624	$6,256	$2,070
	1998–99	$6,180	$3,186	$11,229	$8,194	$1,697	$5,489	$7,528	$2,809
	Percent change	33	29	33	30	24	51	20	36
Median charge	1993–94	$3,330	$2,260	$8,290	$6,093	$1,121	$3,000	$5,818	$1,676
	1998–99	$4,628	$2,998	$11,173	$7,502	$1,430	$5,600	$7,301	$2,078
	Percent change	39	33	35	23	28	87	25	24
Undergraduate tuition and required fees (out-of-state)									
Mean charge	1993–94	$5,634	$6,366	$8,435	$6,305	$3,174	$3,719	$6,256	$2,411
	1998–99	$7,561	$8,248	$11,246	$8,194	$4,006	$5,631	$7,529	$3,479
	Percent change	34	30	33	30	26	51	20	44
Median charge	1993–94	$4,830	$6,244	$8,310	$6,093	$3,136	$3,125	$5,818	$2,250
	1998–99	$6,740	$8,300	$11,180	$7,502	$3,884	$5,728	$7,301	$3,000
	Percent change	40	33	35	23	24	83	25	33
Graduate tuition and required fees (in-state)									
Mean charge	1993–94	$5,417	$2,735	$6,765	$6,332	(†)	(†)	(†)	(†)
	1998–99	$7,076	$3,555	$8,609	$9,059	(†)	(†)	(†)	(†)
	Percent change	31	30	27	43	(†)	(†)	(†)	(†)
Median charge	1993–94	$4,301	$2,453	$5,948	$5,400	(†)	(†)	(†)	(†)
	1998–99	$5,825	$3,248	$7,614	$7,440	(†)	(†)	(†)	(†)
	Percent change	35	32	28	38	(†)	(†)	(†)	(†)
Graduate tuition and required fees (out-of-state)									
Mean charge	1993–94	$6,588	$6,246	$6,782	$6,364	(†)	(†)	(†)	(†)
	1998–99	$8,555	$8,310	$8,623	$9,059	(†)	(†)	(†)	(†)
	Percent change	30	33	27	42	(†)	(†)	(†)	(†)
Median charge	1993–94	$5,924	$5,904	$5,948	$5,402	(†)	(†)	(†)	(†)
	1998–99	$7,700	$8,046	$7,630	$7,440	(†)	(†)	(†)	(†)
	Percent change	30	36	28	38	(†)	(†)	(†)	(†)

†Not applicable.

NOTE: Mean and median charges are based on institution and not student enrollment. Undergraduate tuition represents all responding institutions that offer undergraduate programs and have full-time undergraduate students. Graduate tuition represents all responding institutions that offer graduate programs and have full-time graduate students. Institutions that report tuition by program are not included.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 and 1998 Integrated Postsecondary Education Data System, "Institutional Characteristics Survey" (IPEDS-IC:93–94 and 98–99).

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Table E.—Average institutional charges for room and board for full-time, full-year students at all postsecondary institutions, by level and control of institution: 50 states and the District of Columbia, academic years 1993–94 and 1998–99

			4 years and above			2 but less than 4 years			Less than 2 years
				Private			Private		
Item		Total	Public	Not-for-profit	For-profit	Public	Not-for-profit	For-profit	Public
Dormitory facilities									
Mean charge	1993–94	$1,873	$1,868	$2,037	$2,781	$1,153	$1,524	$2,327	(#)
	1998–99	$2,400	$2,338	$2,599	$3,531	$1,395	$1,918	$3,082	(#)
	Percent change	28	25	28	27	21	26	32	(#)
Median charge	1993–94	$1,729	$1,768	$1,850	$2,680	$1,075	$1,450	$2,385	(#)
	1998–99	$2,228	$2,190	$2,400	$3,792	$1,240	$1,800	$3,230	(#)
	Percent change	29	24	30	41	15	24	35	(#)
Meal plans									
Mean charge	1993–94	$1,835	$1,622	$2,026	(#)	$1,463	$1,558	$1,659	3
	1998–99	$2,150	$1,934	$2,363	(#)	$1,612	$1,831	$2,000	(#)
	Percent change	17	19	17	(#)	10	18	21	(#)
Median charge	1993–94	$1,850	$1,609	$2,000	(#)	$1,470	$1,599	$1,700	(#)
	1998–99	$2,160	$1,930	$2,400	(#)	$1,588	$2,000	$1,884	(#)
	Percent change	17	20	20	(#)	8	25	11	(#)

#Too small to report.

NOTE: Mean and median charges are based on institution and not student enrollment.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1993 and 1998 Integrated Postsecondary Education Data System, "Institutional Characteristics Survey" (IPEDS-IC:93–94 and 98–99).

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Public Libraries

Public Libraries in the United States: Fiscal Year 1998

Adrienne Chute and P. Elaine Kroe

This article was originally published as the Introduction and Highlights of the E.D. Tabs report of the same name. The universe data are from the NCES Public Libraries Survey (PLS).

Introduction

The tables in this report summarize information about public libraries in the 50 states and the District of Columbia for state fiscal year (FY) 1998.[1] (Data from two outlying areas, Guam and the Northern Mariana Islands, are also included in the tables,[2] but not in the table totals.) The data were collected through the Public Libraries Survey (PLS), conducted annually by the National Center for Education Statistics (NCES) through the Federal-State Cooperative System (FSCS) for Public Library Data. The FY 98 survey is the 11th in the series.

This report includes information about service measures such as access to the Internet and other electronic services, reference transactions, public service hours, interlibrary loans, circulation, library visits, children's program attendance, and circulation of children's materials. It also includes information about size of collection, staffing, operating income and expenditures, type of legal basis, and type of administrative structure, as well as summary information about the number and type of public library service outlets.[3]

The following highlights are for libraries in the 50 states and the District of Columbia.

Number of Public Libraries, Population of Legal Service Area, and Service Outlets

Number of libraries and population served

There were 8,964 public libraries (administrative entities) in the 50 states and the District of Columbia in FY 98. Eleven percent of the public libraries served 72 percent of the population of legally served areas in the United States; each of these public libraries had a legal service area population of 50,000 or more. Of the total population of the states and the District of Columbia, 97 percent[4] had access to public library services, and 3 percent did not.

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[1] In three states (Michigan, Pennsylvania, and Texas), some public libraries reported data for FY 97. Most of West Virginia's data are for FY 97.

[2] The National Center for Education Statistics is working with other outlying areas and hopes to be able to include their data in future years.

[3] See the glossary in the full report for definitions of terms used in the report.

Service outlets

Eighty percent of public libraries had a single direct service outlet (an outlet that provides service directly to the public). Twenty percent had more than one direct service outlet. This report includes information about three types of direct public library service outlets: branch library outlets, central library outlets, and bookmobile outlets. A total of 1,513 public libraries (17 percent) had one or more branch library outlets, with a total of 7,293 branches. The total number of central library outlets was 8,887. The total number of stationary outlets (central library outlets and branch library outlets) was 16,180. Nine percent of public libraries had one or more bookmobile outlets, with a total of 933 bookmobiles.

Legal Basis and Interlibrary Relationships

In FY 98, 53 percent of public libraries were part of a municipal government, 12 percent were part of a county/parish, 1 percent were part of a city/county, 6 percent had multijurisdictional legal basis under an intergovernmental agreement, 11 percent were nonprofit association or agency libraries, 3 percent were part of a school district, and 8 percent were separate government units known as library districts. Seven percent reported their legal basis as "other."

Seventy-three percent of public libraries were members of a system, federation, or cooperative service, while 23 percent were not. Four percent served as the headquarters of a system, federation, or cooperative service.

Operating Income and Expenditures

Operating income

In FY 98, 78 percent of public libraries' total operating income of about $6.7 billion came from local sources, 13 percent from state sources, 1 percent from federal sources, and 9 percent from other sources, such as gifts and donations, service fees, and fines.

Nationwide, total per capita[5] operating income for public libraries was $26.02. Of that, $20.18 was from local sources, $3.28 from state sources, $.21 from federal sources, and $2.35 from other sources. Per capita operating income from local sources was under $3.00 for 11 percent of public libraries, $3.00 to $14.99 for 43 percent of libraries, $15.00 to $29.99 for 30 percent of libraries, and $30.00 or more for 17 percent of libraries.

Operating expenditures

Total operating expenditures for public libraries were $6.2 billion. Of this, 64 percent was expended for paid staff and 15 percent for the library collection. Thirty-five percent of public libraries had operating expenditures of less than $50,000, 39 percent expended from $50,000 to $399,999, and 25 percent expended $400,000 or more.

Expenditures for materials in electronic format were 1 percent of total operating expenditures for public libraries. Expenditures for electronic access were 3 percent of total operating expenditures.

The average U.S. per capita operating expenditure for public libraries was $23.92. The highest average per capita operating expenditure in the 50 states and the District of Columbia was $42.31 and the lowest was $10.43.

Staff and Collections

Staff

Public libraries had a total of 123,443 paid full-time-equivalent (FTE) staff in FY 98, or 11.9 paid FTE staff per 25,000 population. Of these, 23 percent, or 2.7 per 25,000 population, were librarians with the ALA-MLS,[6] and 10 percent were librarians by title but did not have the ALA-MLS. Sixty-seven percent of the staff were in other positions.

Collections

Nationwide, public libraries had 739 million books and serial volumes in their collections, or 2.9 volumes per capita. By state, the number of volumes per capita ranged from 1.6 to 5.4. In addition to printed materials, public libraries nationwide had collections of 28 million audio materials and 17 million video materials. Nationwide, public libraries provided 4.4 materials in electronic format (e.g., CD-ROMs, magnetic tapes, and magnetic disks) per 1,000 population.

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[4] This percentage was derived by dividing the total unduplicated population of legal service areas in the United States by the sum of the official state total population estimates as reported by the 50 states and the District of Columbia. (Also see *Data File: Public Libraries Survey: Fiscal Year 1998*, available on the NCES Web Site.)

[5] Per capita figures are based on the total unduplicated population of legal service areas in the 50 states and the District of Columbia, not on the state total population estimates.

[6] Librarians with master's degrees from programs of library and information studies accredited by the American Library Association.

Library Services

Electronic services and Internet access

Nationwide, 74 percent of public libraries provided access to electronic services,[7] and 88 percent of public libraries had access to the Internet (a 9-percentage-point increase since FY 97).[8] Almost 72 percent of all public libraries made the Internet available to patrons directly or through a staff intermediary, almost 9 percent of public libraries made the Internet available to patrons through a staff intermediary only, and almost 8 percent of public libraries made the Internet available only to library staff. Ninety-three percent[9] of the unduplicated population of legal service areas had access to the Internet through their local public library.

Circulation

Total nationwide circulation of public library materials was 1.7 billion, or 6.6 materials circulated per capita. The highest circulation per capita in the 50 states and the District of Columbia was 12.5 and the lowest was 2.7.

Other service measures

Nationwide,

- 13.5 million library materials were loaned by public libraries to other libraries (an increase of 15.0 percent since FY 97);[10]
- reference transactions in public libraries totaled 292 million, or 1.1 reference transactions per capita; and
- library visits in public libraries totaled 1.1 billion, or 4.2 library visits per capita.

Children's services

Nationwide, circulation of children's materials was 612 million, or 36 percent of total circulation. Attendance at children's programs was 46 million.

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Data source: The NCES FY 1998 Public Libraries Survey (PLS).

For technical information, see the complete report:

Chute, A., and Kroe, P.E. (2001). *Public Libraries in the United States: Fiscal Year 1998* (NCES 2001–307).

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To obtain the complete report (NCES 2001–307), visit the NCES Web Site (*http://nces.ed.gov*).

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[7] Access to electronic services refers to electronic services (e.g., bibliographic and full-text databases, multimedia products) provided by the library due to subscription, lease, license, consortial membership or agreement. It includes full-text serial subscriptions and electronic databases received by the library or an organization associated with the library.

[8] See the previous edition of this E.D. Tabs report, *Public Libraries in the United States: FY 1997* (Chute and Kroe 2000), table 6.

[9] This percentage was derived by summing the unduplicated population of legal service areas for (1) all public libraries in which the Internet was used by patrons through a staff intermediary only and (2) all public libraries in which the Internet was used by patrons either directly or through a staff intermediary, and then dividing the total by the unduplicated population of legal service areas in the United States. (Also see *Data File: Public Libraries Survey: Fiscal Year 1998*, available on the NCES Web Site.)

[10] See the previous edition of this E.D. Tabs report, *Public Libraries in the United States: FY 1997* (Chute and Kroe 2000), table 4.

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Academic Libraries

Academic Libraries: 1998

Margaret W. Cahalan and Natalie M. Justh

This article was originally published as the Introduction and Highlights of the E.D. Tabs report of the same name. The universe data are from the NCES Integrated Postsecondary Education Data System "Academic Libraries Survey" (IPEDS-L).

This report presents detailed tabulations for the 1998 "Academic Libraries Survey" (ALS). In 1998, the survey was conducted as part of the Integrated Postsecondary Education Data System (IPEDS) of the U.S. Department of Education's National Center for Education Statistics (NCES).[1] ALS has been conducted by NCES since 1966 at irregular intervals. Since 1990, it has been conducted on a 2-year cycle.

The data in this report cover academic libraries in 2-year and 4-year degree-granting postsecondary institutions in the United States. The tables summarize library services (including electronic services), library staff, library collections, and library expenditures for libraries in degree-granting postsecondary institutions in the 50 states and the District of Columbia. Library staff data are for fall 1998. Operating expenditures and library collections data are for fiscal year (FY) 1998. Data on library circulation and interlibrary loans are for FY 98, and data on other library services are for a typical week in the fall of 1998. FY 98 is defined as any 12-month period between July 1, 1997, and September 30, 1998, that corresponds to the institution's fiscal year.

Number of Academic Libraries

In fall 1998, 3,658 of the 4,141 2-year and 4-year degree-granting postsecondary institutions in the United States reported that they had their own academic library. Of these 3,658 academic libraries, 97 percent responded to the survey.

Services

Circulation

In FY 98, general collection circulation transactions in the nation's academic libraries at degree-granting postsecondary institutions totaled 175.4 million. Reserve collection circulation transactions totaled 40.7 million.

Interlibrary loans

In FY 98, academic libraries provided a total of about 9.2 million interlibrary loans to other libraries (both academic libraries and other types of libraries) and received about 7.7 million loans.

Public service hours

Overall, the largest percentage of academic libraries (42 percent) reported having 60–79 hours of public service per typical week. However, 38 percent provided 80 or more service hours per typical week during the academic year. The percentage of institutions providing 80 or more public service hours ranged from 6 percent in less-than-4-year institutions to 75 percent in doctorate-granting institutions. Twenty libraries reported that they were open 168 hours a week, or 24 hours 7 days a week.

Electronic services

In FY 98, 84 percent of degree-granting postsecondary institutions with an academic library had access from within the library to an electronic catalog of the library's holdings, 95 percent had Internet access within the library, and 54 percent had library reference service by e-mail both within the library and elsewhere on campus. Just under one-third (30 percent) had electronic document delivery by the library to a patron's account or address from within the library. Ninety-two percent had instruction by library staff on the use of Internet resources within the library.

In FY 98, 44 percent of academic libraries had technology within the library to assist persons with disabilities and 34 percent had access to this service from elsewhere on campus. Sixty-five percent provided services to distance education students.

Almost three-fourths (71 percent) of academic libraries had computers not dedicated to library functions for patron use inside the library. Fewer institutions with an academic library (12 percent) had video/desktop conferencing by or for the library accessible within the library, and 19 percent had access from elsewhere on campus. Seventeen percent had satellite broadcasting by or for the library accessible within the library, and 23 percent had access from elsewhere on campus.

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[1] IPEDS is the U.S. Department of Education's vehicle for collecting data from all postsecondary institutions in the United States. Other topics included within IPEDS are institutional characteristics, fall enrollment, completions, finance, faculty salaries, and fall staff. From 1988 to 1998, ALS was a part of the IPEDS system. Beginning in the year 2000, ALS began collecting data independent from the IPEDS data collection; however, data from ALS can still be linked to IPEDS data. IPEDS also provides the frame used for ALS.

Other services

- Taken together, academic libraries reported a gate count of about 16.2 million visitors per typical week (about 1.6 visits per full-time-equivalent [FTE] student enrolled).[2]
- About 2.1 million reference transactions were reported in a typical week.
- Over FY 98, about 438,000 presentations to groups serving about 7.4 million persons were reported.

Collections

Total number of volumes

Taken together, the nation's 3,658 academic libraries at degree-granting postsecondary institutions held a total of 878.9 million paper volumes (books, bound serials, and government documents) at the end of FY 98.

Of the total paper volumes held at the end of the year, 43 percent (376.0 million) were held at the 125 institutions categorized under the Carnegie Classification as Research I or Research II institutions. About 55 percent of the volumes were at those institutions classified as either Research or Doctoral in the Carnegie Classification.

Median volumes per FTE student

The median number of paper volumes held per FTE student was 53.7 volumes. Median volumes held ranged from 18.5 per FTE student in less-than-4-year institutions to 119.8 in doctorate-granting institutions.

In FY 98, the median number of paper volumes added to collections per FTE student was 1.5. The median number added ranged from .7 per FTE student in less-than-4-year institutions to 2.9 in doctorate-granting institutions.

Staff

A total of 96,709 FTE staff were working in academic libraries in fall 1998. Of these, 30,041 (31 percent) were librarians or other professional staff; 38,026 (39 percent) were other paid staff; 270 (less than one-half of 1 percent) were contributed services staff;[3] and 28,373 (29 percent) were student assistants.

Excluding student assistants, the institutional median number of academic library FTE staff per 1,000 FTE students was 5.6. The median ranged from 3.6 in less-than-4-year institutions to 9.1 in doctorate-granting institutions.

Expenditures

In FY 98, expenditures for libraries at the 3,658 degree-granting postsecondary institutions totaled $4.6 billion. The three largest expenditure items for all academic libraries were salaries and wages, $2.3 billion (50 percent); current paper and electronic serial subscription expenditures, $974.9 million (21 percent); and paper books and bound serials, $514.0 million (11 percent).

The libraries of the 570 doctorate-granting institutions (16 percent of the total institutions) accounted for $2.9 billion, or 64 percent of the total expenditure dollars at all academic libraries at degree-granting postsecondary institutions.

In FY 98, the median total for operating expenditures per FTE student was $301.25, and the median for information resource expenditures per FTE student was $84.98.

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[2] FTE enrollment is calculated by adding one-third of part-time enrollment to full-time enrollment. Enrollment data are from the 1997–98 IPEDS "Fall Enrollment Survey." Calculations are based on a total FTE enrollment of 10,216,653.

[3] Contributed services staff are those, such as members of religious orders, whose services are valued by bookkeeping entries rather than by full cash transactions. They do not include volunteers.

Data source: The NCES 1998 Integrated Postsecondary Education Data System "Academic Libraries Survey" (IPEDS-L:98).

For technical information, see the complete report:

Cahalan, M.W., and Justh, N.M. (2001). *Academic Libraries: 1998* (NCES 2001–341).

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Educational Achievement

Educational Achievement and Black-White Inequality

Jonathan Jacobson, Cara Olsen, Jennifer King Rice, Stephen Sweetland, and John Ralph

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from several NCES, Bureau of Labor Statistics, and Department of Education surveys, which are listed at the end of this article.

Major Findings

The study reported here explored the relationship between Black-White differences in educational achievement and Black-White differences in a variety of educational and economic outcomes. Comparisons were made first between overall average outcomes for Blacks and Whites and then between average outcomes for Blacks and Whites with similar levels of prior educational achievement.[1] The major findings of the study reveal that

- For women with similar levels of prior educational achievement, Blacks earned as much, or more, per year as Whites. For men with similar levels of prior educational achievement, Black-White gaps in annual earnings were at least two-fifths smaller than Black-White gaps for men as a whole. Black-White disparities in employment were, for young adults with similar levels of prior educational achievement, at least one-half smaller than Black-White employment disparities for young adults as a whole.
- For young adults with similar levels of prior educational achievement, Blacks were more likely to attend college than Whites. Among college attendees with similar levels of prior educational achievement, Blacks' college completion rates were as high as, or higher than, the college completion rates of Whites.
- Throughout elementary and secondary school, Blacks scored lower, overall, on mathematics and reading tests than Whites. Even for children with similar test scores one or two grades earlier, Blacks generally scored lower in mathematics and reading than Whites.

  The Black-White mathematics gap differed in size across grades, in a manner consistent with, but not necessarily demonstrating, a narrowing of the gap during elementary school, followed by a widening of the gap during junior high school and little change during senior high school. The Black-White reading gap also differed in size across grades, but not in an entirely consistent manner; it grew wider between grades within two elementary school cohorts, but was narrower for cohorts observed in grades 9 and 12 than for a cohort observed in grade 2.

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[1] Comparisons between individuals with similar levels of prior educational achievement involved (1) Whites as a whole, and (2) Blacks with prior educational achievement similar to that for Whites.

In general, the findings show that, for children and young adults with similar levels of prior educational achievement, the educational and economic performance of Blacks relative to Whites was substantially greater than the performance of Blacks relative to Whites as a whole. While Blacks have lower levels of educational achievement, educational attainment, and earnings than Whites, these disparities are frequently smaller, and are sometimes entirely absent, for individuals with similar levels of prior educational achievement. Factors other than differences in prior educational achievement may contribute to Black-White gaps in achievement, employment, and earnings; nonetheless, Blacks' relative educational achievement during elementary and secondary school appeared to be highly correlated with their relative success in the academy and the economy.

Note: This study does *not* attempt to isolate the causal relationship between educational achievement and subsequent educational and economic outcomes. Rather, using educational achievement as an indicator for the cognitive backgrounds of children and young adults, it investigates the extent to which Black-White disparities are present for individuals with similar levels of prior educational achievement. The comparison of outcomes for Blacks and Whites with similar levels of educational achievement does *not* indicate what outcomes for *all* Blacks would be if their average achievement were raised to the level for Whites. Educational achievement differences are correlated with many other possible sources of Black-White disparities, some measured in survey data, others unmeasured.

Background

Over the past quarter-century, Black Americans have made important gains in narrowing the gaps in educational and economic performance between themselves and Whites. Between 1973 and 1996, for example, average scores of Black 17-year-olds on the mathematics portion of the National Assessment of Educational Progress (NAEP) grew by 6 percent, while average scores of White 17-year-olds remained about the same (Snyder, Hoffman, and Geddes 1997). Black-White gaps in NAEP reading scores also narrowed over this period. Further, in 1974, the high school dropout rate for 15- through 24-year-old Blacks was twice the corresponding rate for Whites; but by 1997, Blacks and Whites in this age bracket remained in high school at similar rates (National Center for Education Statistics 1999).

Despite progress in reducing Black-White gaps in mathematics and reading achievement, Blacks have continued to score lower on NAEP than Whites (Snyder, Hoffman, and Geddes 1997). And, despite the convergence in high school completion rates of Blacks and Whites, the Black-White gap in 4-year college completion rates of high school graduates 25–29 years old has increased slightly over the past quarter-century. Between 1975 and 1998, this gap increased from 13 to 17 percentage points (National Center for Education Statistics 1999).

In recent years, Black-White disparities have also persisted—and have sometimes grown larger—for labor market outcomes such as labor force participation,[2] unemployment,[3] and hourly wages. Between 1973 and 1993, Black-White differences in the labor force participation rates of 25- through 34-year-olds widened by 3.4 percentage points for men and 19 percentage points for women, and the corresponding Black-White gaps in unemployment rates widened by about 2.4 percentage points for both men and women. Over the same time period, the Black-White gap in hourly wages narrowed by one-third for 25- through 34-year-old men, but more than doubled for 25- through 34-year-old women (Bernstein 1995).

Recent studies have revealed a strong relationship between differences in prior educational achievement and Black-White disparities in college attendance and earnings. With Black-White disparities remaining in both educational and economic outcomes, it is important to understand the relationship between educational achievement during elementary and secondary school and subsequent academic and labor market performance.

The Present Study

The study documented in this report used multiple datasets to confirm and extend earlier findings. Specifically, this study included three sets of analyses designed to investigate the relationship between Black-White differences in prior educational achievement and a variety of subsequent outcomes:[4]

- The first set of analyses considered the extent to which Black-White differences in *labor market outcomes* were present for young adults as a whole and for young adults with similar levels of prior educational achievement.

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[2] The *labor force participation rate* is defined as the percentage of noninstitutionalized civilians who are employed, otherwise with a job, or looking for a job.

[3] The *unemployment rate* is defined as the percentage of labor force participants who are without a job.

[4] *Prior educational achievement* is defined as prior mathematics and/or reading achievement. The accompanying figures indicate outcomes for all Whites, all Blacks, and Blacks at Whites' level of prior educational achievement.

- The second set of analyses considered the extent to which Black-White differences in *educational attainment* were present for young adults as a whole and for young adults with similar levels of prior educational achievement.
- The final set of analyses considered the extent to which Black-White differences in *mathematics and reading achievement* were present for children as a whole and for children with similar levels of prior educational achievement. These analyses also considered the extent to which Black-White achievement gaps varied in size during elementary and secondary school.

Black-White Differences in Labor Market Outcomes

Main findings

Analyses of labor market outcomes between 1979 and 1992[5] indicate that, for young adults with similar levels of prior educational achievement, the economic performance of Blacks relative to Whites was substantially greater than for young adults as a whole. For young adults with similar levels of prior educational achievement, Black-White gaps in unemployment rates were generally at least one-half smaller than for young adults as a whole. Among men with similar levels of prior educational achievement, Black-White gaps in annual earnings were at least two-fifths smaller than for men as a whole. Black women with levels of prior educational achievement similar to White women earned as much as, or more than, their White counterparts.

Unemployment rates

For the samples of young adults studied, there were no consistent differences between Blacks and Whites in terms of labor force participation, but Black labor force participants were more likely to be unemployed than White labor force participants (figure 1). The absolute Black-White gaps in unemployment rates ranged between 4 and 10 percentage points, and were similar in size for men and women. These gaps were generally at least one-half smaller for young adults with similar levels of prior educational achievement than for young adults as a whole.

Annual earnings

For the samples of young adults studied, Blacks generally earned less per year than Whites.[6] Black-White gaps in annual earnings for men ranged from 16 percent in the 1979 sample to about 32 percent in the 1983–89 and 1986–92 samples (figure 2). In the 1979 and 1992 samples, Black women and

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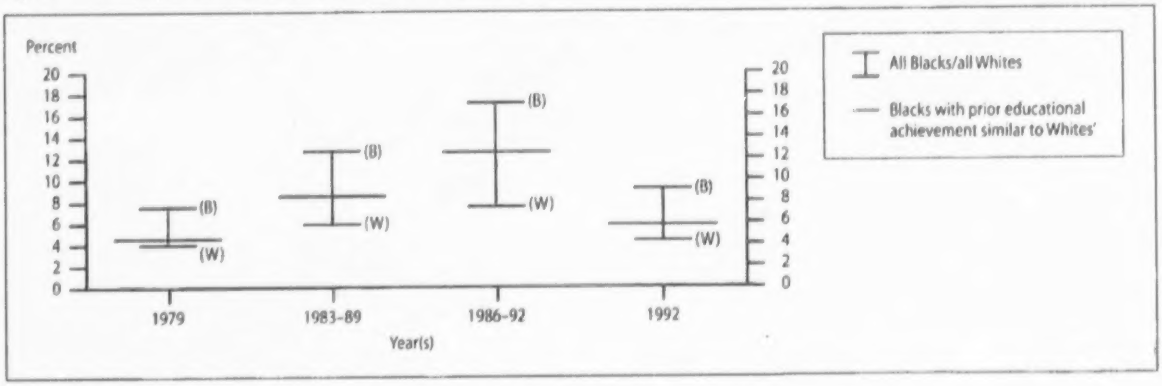
[5] The analyses of labor market outcomes focused on four samples of young adults: (1) young adults who were high school seniors in 1972 and who were observed 7 years later through the National Longitudinal Study of the High School Class of 1972 ("the 1979 sample"); (2) young adults who were high school seniors between 1976 and 1982 and who were observed 7 years later through the National Longitudinal Survey of Youth ("the 1983–89 sample"); (3) young adults who were high school sophomores between 1974 and 1980 and who were observed 12 years later through the National Longitudinal Survey of Youth ("the 1986–92 sample"); and (4) young adults who were high school sophomores in 1980 and who were observed 12 years later through the High School and Beyond Longitudinal Study ("the 1992 sample"). High school sophomores and seniors were generally identified as of the spring of each year. Educational achievement was measured in 1972 for the 1979 sample and in 1980 for the other samples.

[6] The pattern of Black-White gaps in hourly wages—reported in every sample except the 1992 High School and Beyond sample—was generally similar to the pattern of gaps in annual earnings.

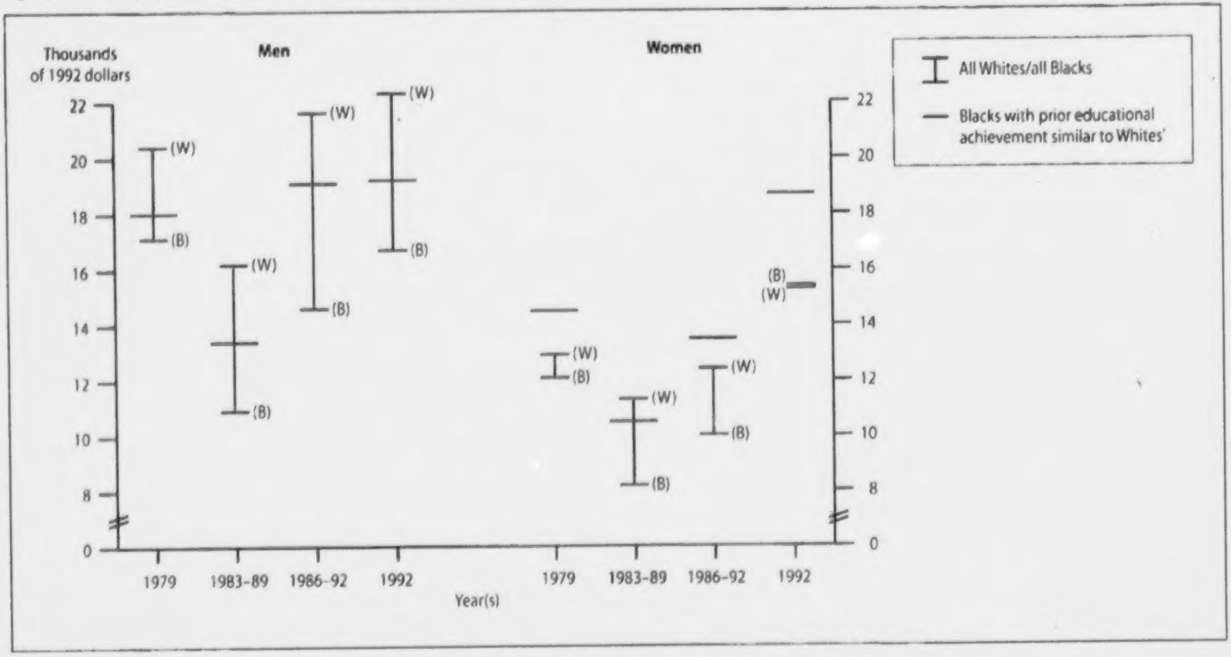
Figure 1.—Unemployment rates for Black and White young adults: 1979–92



NOTE: Samples restricted to civilian labor force participants; higher end of gray range is for Blacks.

SOURCE: U.S. Department of Education, National Center for Education Statistics: National Longitudinal Study of the High School Class of 1972, "Fourth Follow-up" (NLS:72/79) (1979 sample, 7 years after grade 12), High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/92) (1992 sample, 12 years after grade 10); and U.S. Department of Labor, Bureau of Labor Statistics, National Longitudinal Survey of Youth (1983–89 sample, 7 years after grade 12, and 1986–92 sample, 12 years after grade 10).

Figure 2.—Average annual earnings for Black and White young men and women: 1979–92



NOTE. Samples restricted to civilians reporting some earnings; higher end of gray range is for Whites, except in the case of women in 1992.

SOURCE: U.S. Department of Education, National Center for Education Statistics: National Longitudinal Study of the High School Class of 1972, "Fourth Follow-up" (NLS:72/79) (1979 sample, 7 years after grade 12), High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So 80/92) (1992 sample, 12 years after grade 10); and U.S. Department of Labor, Bureau of Labor Statistics, National Longitudinal Survey of Youth (1983–89 sample, 7 years after grade 12, and 1986–92 sample, 12 years after grade 10).

White women had similar earnings. In the 1986–92 sample, the Black-White earnings gap for women was about two-thirds smaller than the corresponding gap for men.

For men with similar levels of prior educational achievement, the Black-White gap in annual earnings was measured imprecisely in the 1979 sample, such that it was distinguishable neither from zero, nor from the gap for men as a whole. In the 1983–89, 1986–92, and 1992 samples, the Black-White earnings gap for men with similar educational achievement was over two-fifths smaller than for men as a whole.

For women with similar levels of prior educational achievement, Blacks earned 12 percent more per year than Whites in the 1979 sample, 22 percent more per year than Whites in the 1992 sample, and about the same as Whites in the 1983–89 and 1986–92 samples.

Additional sources of disparities in labor market outcomes

Since differences in educational achievement can predict only a portion of Black-White differences in employment and men's earnings, other factors must contribute to racial disparities in these outcomes. Possible reasons for the remainder of these gaps include a relative shortage of jobs in areas where Blacks live, fewer job networks for Blacks, and the existence of labor market discrimination against Blacks. Unmeasured skill differences between labor force participants of different racial backgrounds may also contribute to the remaining Black-White disparities in employment and men's earnings.

Black-White Differences in Educational Attainment

Main findings

Blacks having similar levels of prior educational achievement as Whites had received a high school diploma or General Educational Development (GED) certificate at an equal or higher rate than Whites. For young adults with similar levels of prior educational achievement in the same four samples observed between 1979 and 1992, the postsecondary educational attainment of Blacks was as high as, or higher than, that of Whites.[7] For such young adults, the college attendance rate was higher for Blacks than for Whites. Further, Black college attendees with levels of prior educational achievement similar to those for Whites completed college at rates similar to, or higher than, the rates for White college attendees.

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[7] The analyses of educational attainment outcomes focused on the same four samples of young adults studied for the analyses of labor market outcomes. Black-White differences in postsecondary educational attainment were generally similar for males and females.

High school/GED completion rates

Black-White differences in high school/GED completion rates could be compared for every sample of young adults except the 1979 sample.[8] A Black-White gap in high school/GED completion rates (in the range of 2 to 8 percentage points) was evident in the 1983–89, 1986–92, and 1992 samples. For young adults with similar levels of prior educational achievement, Blacks received high school diplomas or GED certificates at a rate similar to or higher than Whites.

College attendance rates

Young adults observed between 1979 and 1992 generally showed a Black-White gap in college attendance rates (figure 3). Compared with Whites, Blacks had a 4- to 7-percentage-point lower rate of college attendance in the 1979 and 1983–89 samples, and a 10-percentage-point lower rate of college attendance in the 1992 sample.[9] In contrast, for young adults with similar levels of prior educational achievement, Blacks had a 6- to 17-percentage-point *higher* rate of college attendance than Whites.

College completion rates

For young adults who had attended at least some college, college completion rates[10] were consistently lower for Blacks than for Whites (figure 4). The Black-White gap in college completion ranged from about 13 percentage points in the 1979 sample to about 19 percentage points in the other three samples. Again, in contrast, among college attendees with similar levels of prior educational achievement, the college completion rate of Blacks equaled or exceeded that of Whites.

Black-White Differences in Educational Achievement

Main findings

The analyses of educational achievement compared mathematics and reading levels of Black and White children at

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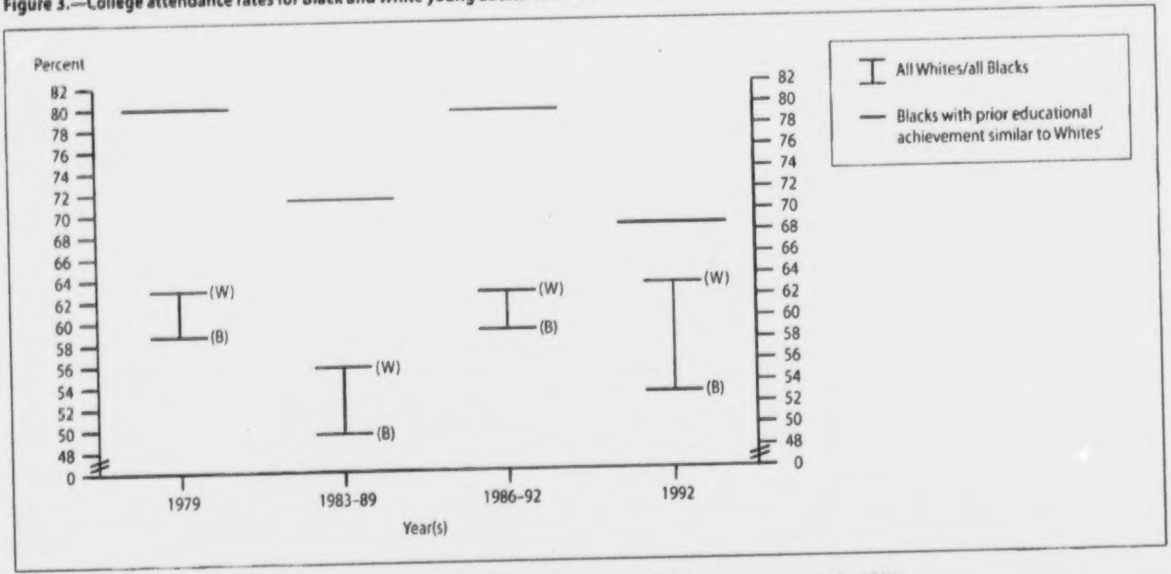
[8] High school/GED completion status was ambiguous for individuals in the 1979 sample.

[9] In the 1986–92 sample, the Black-White difference in college attendance was significant for men (8 percent) but not for women or for young adults as a whole.

[10] *College completion* is defined here as completion of at least 4 years of college or an equivalent bachelor's degree.

Figure 3.—College attendance rates for Black and White young adults: 1979–92



NOTE: Samples restricted to former 12th-graders or high school graduates (as indicated below); higher end of gray range is for Whites.

SOURCE: U.S. Department of Education, National Center for Education Statistics: National Longitudinal Study of the High School Class of 1972, "Fourth Follow-up" (NLS:72/79) (1979 sample, 7 years after grade 12), High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/92) (1992 sample, high school graduates 12 years after grade 10); and U.S. Department of Labor, Bureau of Labor Statistics, National Longitudinal Survey of Youth (1983–89 sample, 7 years after grade 12, and 1986–92 sample, high school graduates 12 years after grade 10).

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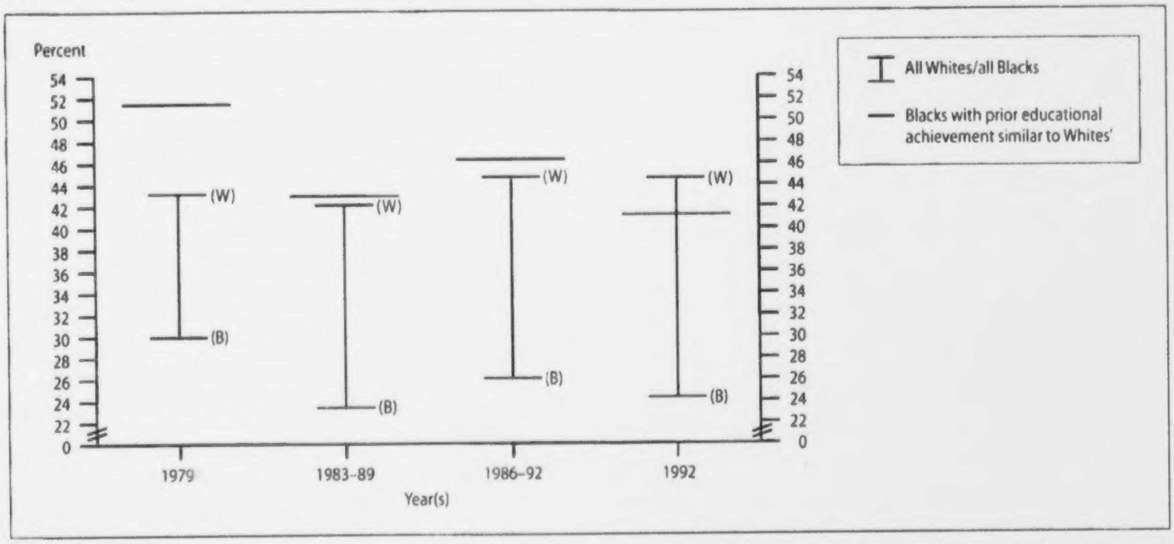
Figure 4.—College completion rates for Black and White young adults: 1979–92



NOTE: College completion is defined as completion of 4 years of college or the equivalent. Samples restricted to persons who have attended at least some college; higher end of gray range is for Whites.

SOURCE: U.S. Department of Education, National Center for Education Statistics: National Longitudinal Study of the High School Class of 1972, "Fourth Follow-up" (NLS:72/79) (1979 sample, 7 years after grade 12), High School and Beyond Longitudinal Study of 1980 Sophomores (HS&B-So:80/92) (1992 sample, high school graduates 12 years after grade 10); and U.S. Department of Labor, Bureau of Labor Statistics, National Longitudinal Survey of Youth (1983–89 sample, 7 years after grade 12, and 1986–92 sample, high school graduates 12 years after grade 10).

various points between grades 1 and 12.[11] Black-White gaps in mathematics and reading achievement appeared at every grade studied. Even for children with similar levels of prior achievement one or two grades earlier,[12] mathematics and reading scores of Blacks were generally lower than the corresponding scores of Whites.

Comparisons of the size of Black-White achievement gaps were possible between nearby grades within the same sample of children, as well as across different samples of children from grades 1 to 12. The Black-White mathematics gap differed in size across grades, in a manner consistent with a narrowing of the gap during elementary school, followed by a widening of the gap during junior high school and little change during senior high school. The Black-White reading gap also differed in size across grades, but not in an entirely consistent manner; it grew wider between grades within two elementary school cohorts, but was narrower in cohorts observed in grades 9 and 12 than in a cohort observed in grade 2.

Mathematics achievement

Compared with White children, Blacks scored lower on mathematics tests at every grade level studied between grades 1 and 12 (figure 5). Black-White mathematics gaps were usually similar in size for both boys and girls.

Within the same samples of children, the Black-White gap increased by two-fifths between grades 7 and 9, but changed little between grades 1 and 2, grades 3 and 5, and grades 10 and 12. Across different samples of children, the Black-White math gap was two-fifths smaller in grade 5 than in grade 2, but one-half larger in grade 9 than in grade 5, and about the same size in grade 12 as in grade 9. Between the grade 2 and grade 12 samples there was no difference in the size of the Black-White math gap, suggesting that any narrowing of the gap between grades 2 and 5 was largely negated by the widening of the gap between grades 5 and 9.[13]

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[11] The analyses of educational achievement outcomes focused on four samples of children: (1) children between grades 1 and 2, observed from 1992 to 1993 in cohort 1 of the Chapter 1 Prospects Study; (2) children between grades 3 and 5, observed from 1991 to 1993 in cohort 3 of the Prospects Study; (3) children between grades 7 and 9, observed from 1991 to 1993 in cohort 7 of the Prospects Study; and (4) children between grades 10 and 12, observed from 1990 to 1992 in the National Education Longitudinal Study of 1988 Eighth-Graders. Black-White differences in educational achievement were usually similar for boys and girls.

[12] *Prior educational achievement* was defined as the corresponding mathematics or reading score for the earliest grade in which a sample of children was observed (grades 1, 3, 7, and 10, respectively).

[13] Note that comparisons of the grade 2, grade 5, grade 9, and grade 12 gaps involve four separate samples of children, which, while generally similar in observed family background characteristics, may differ in terms of unobserved family background and school characteristics. For the sample of children observed between grades 10 and 12, however, there is corroborating evidence of a widening of the Black-White mathematics gap by about one-fifth between grades 8 and 10.

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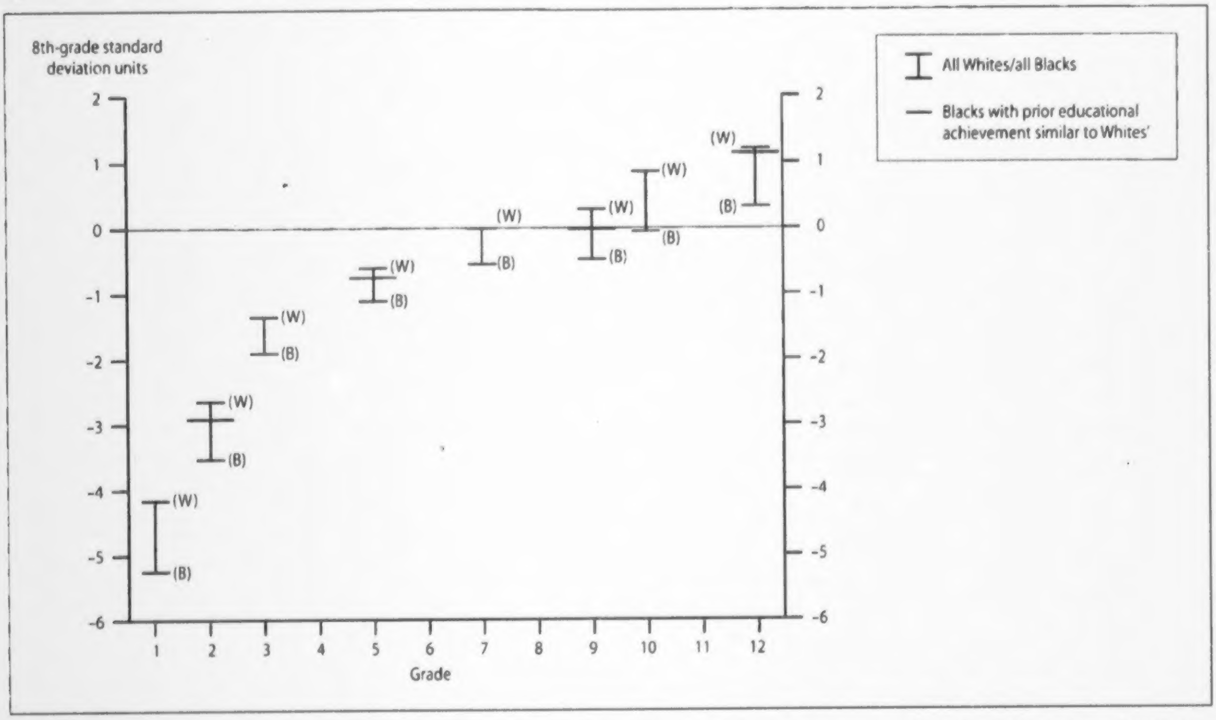
Figure 5.—Average mathematics achievement scores for Black and White children: 1990–93



NOTE: Prior mathematics achievement refers to mathematics achievement one grade earlier for the grade 2 sample and two grades earlier for the grade 5, grade 9, and grade 12 samples. Mathematics scores are normalized so the grade 8 score for children of all races has a mean of 0 and a standard deviation of 1 in the grade 9 and grade 12 samples. Higher end of gray range is for Whites.

SOURCE: U.S. Department of Education: Chapter 1 Prospects Study (1992–93 sample of 1st- through 2nd-graders, and 1991–93 samples of 3rd- through 5th-graders and 7th- through 9th-graders), and National Center for Education Statistics, National Education Longitudinal Study of 1988 Eighth-Graders (NELS:88/92) (1990–92 sample of 10th- through 12th-graders).

Even for children who had similar math scores one or two grades earlier, a Black-White mathematics gap usually appeared. A Black-White mathematics gap was present in grade 2, even for children with similar math scores in grade 1; in grade 5, even for children with similar math scores in grade 3; and in grade 9, even for children with similar math scores in grade 7. These gaps were 59 to 70 percent smaller than the corresponding mathematics gaps for children as a whole. (Black and White children with similar math scores in grade 10 had similar math scores in grade 12.)

Reading achievement

Compared with Whites, Blacks also scored lower on reading tests at every grade level studied between grades 1 and 12 (figure 6). Black-White reading gaps did not differ consistently for boys and girls.

The Black-White reading gap grew wider between some grades, but was narrower in grades 9 and 12 than in grade 2.[14] Within the same samples of children, the Black-White reading gap increased by one-third between grades 1 and 2 and by about one-fifth between grades 3 and 5,[15] while remaining about the same between grades 7 and 9, and between grades 10 and 12. Across different samples of children, the Black-White reading gap was one-third smaller in grade 9 than in grade 2, and two-fifths smaller in grade 12 than in grade 2.

A Black-White reading gap was generally present, even for children with similar reading scores one or two grades earlier. For children with similar reading scores one or two grades earlier, the Black-White reading gap was 58 to 77 percent smaller than the corresponding Black-White reading gap for children as a whole.

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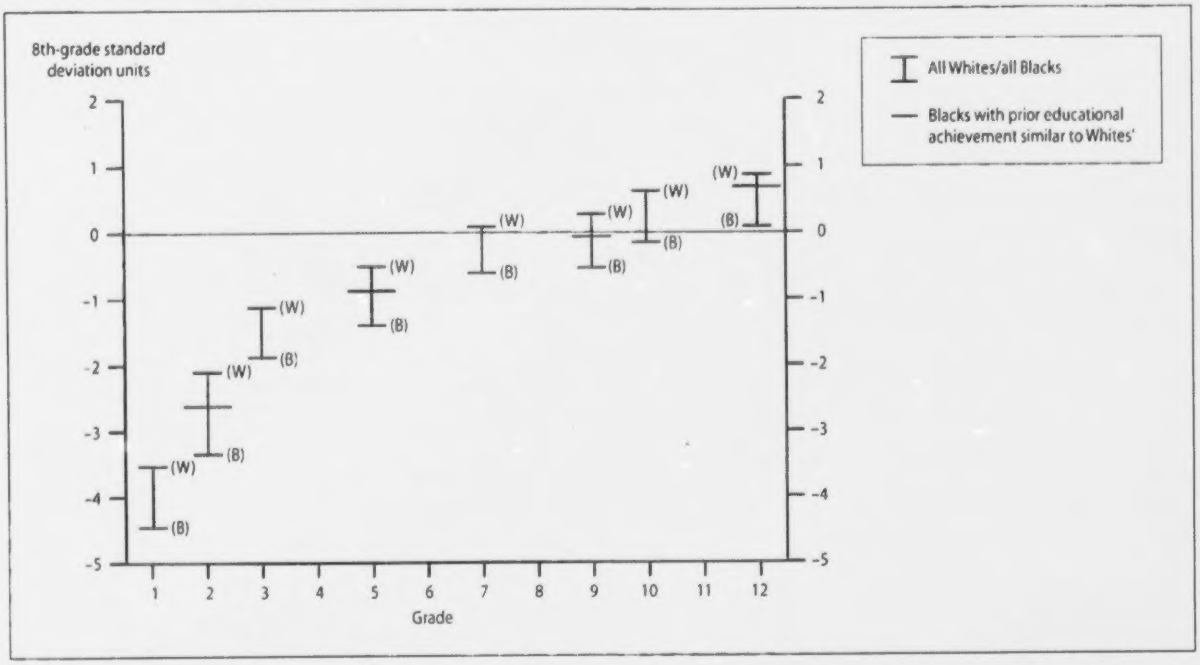
[14] Note that the comparisons of the grade 9 and 12 gaps with the grade 2 gap involve separate samples of children, which may differ in terms of family background and school characteristics.

[15] For the sample of children observed between grades 10 and 12, there was corroborating evidence of a widening of the Black-White reading gap by about one-sixth between grades 8 and 10.

Figure 6.—Average reading achievement scores for Black and White children: 1990–93



NOTE: Prior reading achievement refers to reading achievement one grade earlier for the grade 2 sample and two grades earlier for the grade 5, grade 9, and grade 12 samples. Reading scores are normalized so the grade 8 score for children of all races has a mean of 0 and a standard deviation of 1 in the grade 9 and grade 12 samples. Higher end of gray range is for Whites.

SOURCE: U.S. Department of Education: Chapter 1 Prospects Study (1992–93 sample of 1st- through 2nd-graders, and 1991–93 samples of 3rd- through 5th-graders and 7th- through 9th-graders), and National Center for Education Statistics, National Education Longitudinal Study of 1988 Eighth-Graders (NELS:88/92) (1990–92 sample of 10th- through 12th-graders).

While findings within the same samples of children would, by themselves, suggest a widening of the Black-White reading gap as children progressed through school, findings across different samples suggest an overall narrowing of the Black-White reading gap between grades 2 and 9, with this narrowing persisting through grade 12. This difference in findings may be consistent with the actual experiences of children as they progressed through school, or it may arise from the use of different cohorts of children in the comparisons. The collection and analysis of longitudinal data following the same sample of children all the way from grade 2 through grade 12 would help to further address the question of how the Black-White reading gap changes over the course of the school years.

Additional sources of disparities in educational achievement

On average, Blacks in grade 1 had lower mathematics and reading scores than Whites, and Blacks in grade 12 also had lower mathematics and reading scores than Whites. Among children with similar test scores one or two grades earlier, Blacks generally acquired fewer reading skills than Whites, and usually acquired fewer mathematics skills as well. These findings imply that Black-White disparities in educational achievement can widen as students progress through elementary or secondary school. Possible explanations for these differences in achievement growth include differences in the school or home environments of children of different racial backgrounds that make it more difficult for Blacks to acquire math or reading skills at the same pace as Whites.

Conclusion

The findings of this study imply that, over the past 2 decades, Black-White differences in educational achievement have been strongly associated with Black-White disparities in a variety of educational and economic outcomes. Achievement differences do not necessarily cause gaps in educational attainment, employment, or earnings, but they reflect a set of circumstances responsible for Black-White disparities in both the academy and the economy. Addressing the contributing causes of Black-White achievement differences will be important in efforts to narrow Black-White gaps in educational performance, and perhaps also in subsequent labor market outcomes.

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Data sources:

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Other: U.S. Department of Labor, Bureau of Labor Statistics, National Longitudinal Survey of Youth (NLSY), 1979–92; and U.S. Department of Education, Chapter 1 Prospects Study, 1991–93.

For technical information, see the complete report:

Jacobson, J., Olsen, C., Rice, J.K., Sweetland, S., and Ralph, J. (2001). *Educational Achievement and Black-White Inequality* (NCES 2001–061).

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To obtain the complete report (NCES 2001–061), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

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Occupational Programs

Features of Occupational Programs at the Secondary and Postsecondary Education Levels

Richard P. Phelps, Basmat Parsad, Elizabeth Farris, and Lisa Hudson

This article was originally published as the Executive Summary of the Statistical Analysis Report of the same name. The sample survey data are from two NCES surveys on occupational programs, conducted through the Fast Response Survey System (FRSS) and the Postsecondary Education Quick Information System (PEQIS).

This report presents data collected from two surveys conducted in spring 1999: "Survey on Vocational Programs in Secondary Schools" and "Survey on Occupational Programs in Postsecondary Education Institutions." The surveys were conducted to provide the U.S. Department of Education's Office of Vocational and Adult Education (OVAE) with national estimates on occupational program activities.

The secondary school survey was conducted through the National Center for Education Statistics (NCES) Fast Response Survey System (FRSS), and the postsecondary survey was conducted through the NCES Postsecondary Education Quick Information System (PEQIS). The FRSS survey was administered to public secondary schools that include grades 11 and 12; respondents were asked about program activities for 28 selected occupations within 6 broad occupational areas. The PEQIS survey was administered to less-than-4-year postsecondary institutions, and respondents were asked to report on program activities for 32 selected occupations in the same 6 occupational areas. Survey findings are presented by school type (comprehensive, vocational) for the FRSS survey, and by level of institution (2-year, less-than-2-year) for the PEQIS survey. Most findings are based on schools and institutions that offered at least one of the listed occupational programs.

Program Offerings

Overall, a majority of all public secondary schools offered at least one of the listed occupational programs: 35 percent of the schools offered 1 to 5 programs, 18 percent offered 6 to 10 programs, and another 13 percent offered more than 10 programs. However, about one-third of the schools did not offer any of these programs. As one might expect, vocational schools were more likely than comprehensive high schools to offer the listed occupational programs; 98 percent of vocational schools offered at least one listed program, compared to 63 percent of comprehensive schools. On average, vocational schools also offered more occupational programs than did comprehensive schools; for example, 44 percent of vocational schools compared with 9 percent of comprehensive schools offered more than 10 of the listed occupational programs (figure A).

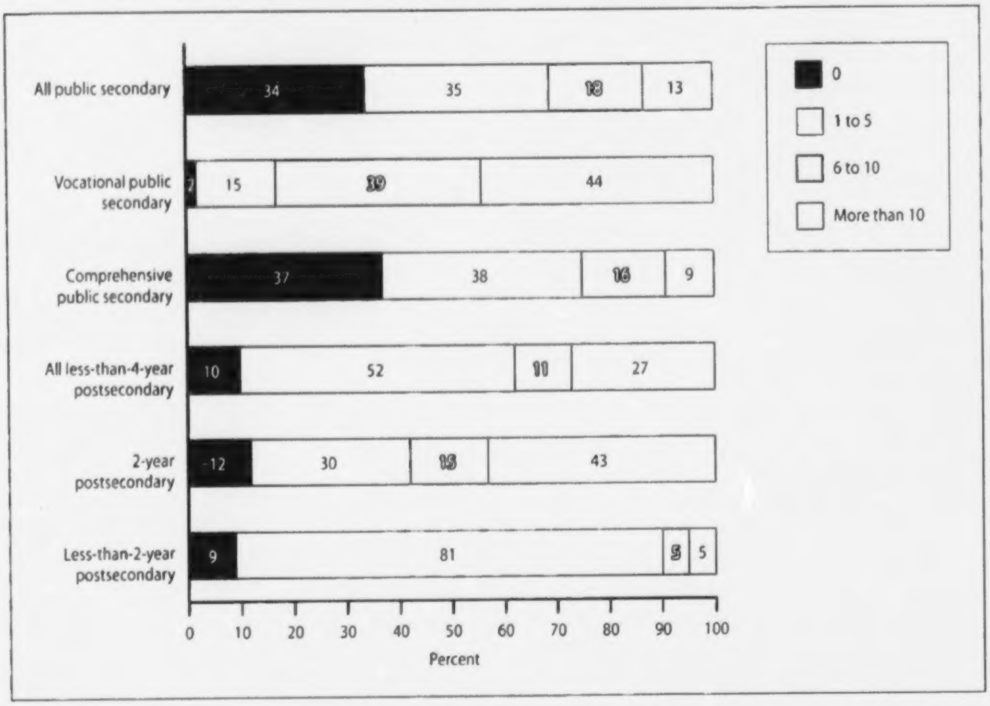
Ninety percent of less-than-4-year postsecondary institutions offered at least one of the listed occupational programs. About half of the institutions offered 1 to 5 programs, another 11 percent offered 6 to 10 programs, and an additional 27 percent offered more than 10 programs. A similar percentage of 2-year and less-than-2-year institutions offered at least one listed occupational program; 91 percent of less-than-2-year institutions offered at least one of the listed programs, compared to 88 percent of 2-year institutions. However, 2-year institutions offered more of the listed occupational programs; for example, 43 percent of 2-year institutions compared with 5 percent of less-than-2-year institutions offered more than 10 programs. With one exception (cosmetology), each specific occupational program was more common among 2-year institutions than among less-than-2-year institutions.

Among the public secondary schools and less-than-4-year postsecondary institutions that offered at least one listed occupational program, some broad program areas and some specific programs were more popular than others. A majority of these public secondary schools offered at least one program in two of the six broad program areas—business and marketing (85 percent) and technical occupations (60 percent). About half of these schools offered at least one program in each of the other broad program areas—mechanical occupations, the building trades, health/life sciences, and service occupations. Among less-than-4-year postsecondary institutions offering any listed program, a majority offered at least one program in three of the six broad program areas—service occupations (64 percent), health/life sciences (61 percent), and business and marketing (60 percent). About half of these institutions offered programs for technical occupations, and fewer than half offered at least one program in mechanical occupations and the building trades.

Ensuring the Teaching of Relevant Job Skills

Educators responsible for occupationally specific courses typically attempt to ensure that the content of their courses relates well to the occupations for which they prepare students. Various procedures exist to ensure a match

Figure A.—Percentage distribution of public secondary schools and less-than-4-year postsecondary institutions that offer various numbers of occupational programs, by type of school or institution: 1999



NOTE: Estimates are based on public secondary schools with 11th and 12th grades and on 2-year and less-than-2-year postsecondary institutions with Title IV eligibility.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Vocational Programs in Secondary Schools," FRSS 72, 1999; and Postsecondary Education Quick Information System (PEQIS), "Survey on Occupational Programs in Postsecondary Education Institutions," 1999. (Originally published as figure 1 on p. 5 of the complete report from which this article is excerpted.)

between course content and occupational skill requirements, five of which were included in the surveys. For public secondary schools, the five procedures listed were industry advisory committees, surveys of employers' skill needs, follow-up surveys of graduates, student work experience (e.g., internships), and faculty externships (occupational work experience). Except for faculty externships, each of these procedures was used by at least two-thirds of all public secondary schools that offered at least one of the listed occupational programs. About half of these schools used faculty externships to ensure that courses teach appropriate job skills. For less-than-4-year postsecondary institutions, the five listed procedures were industry advisory committees, surveys of employers' skill needs, follow-up surveys of graduates, mechanisms for faculty to get recent work experience, and periodic internal reviews. Except for mechanisms for faculty to get recent work experience, each of these procedures was used in at least one listed occupational program by about four-fifths of less-than-4-year postsecondary institutions that offered at least one of the listed occupational programs. About half of these institutions used mechanisms for faculty to get recent work experience.

Skill Competency Lists

To examine the use of skill competencies in occupational programs, respondents in both surveys were asked whether skill competency lists had been developed or adopted for each listed occupational program. Most public secondary schools with one or more of the listed occupational programs had developed or adopted skill competency lists for their programs; 78 percent of these schools had developed or adopted skill competencies for all of their offered programs and 95 percent had developed or adopted skill competencies for at least one program. As with secondary schools, a large proportion of 2-year and less-than-2-year postsecondary institutions that offered one or more of the listed occupational programs reported that skill competency lists had been developed or adopted for their programs; 77 percent of these institutions had developed or adopted skill competencies for all of their programs and 93 percent had developed or adopted skill competencies for at least one program.

Secondary schools and postsecondary institutions also were asked to indicate the extent of educator and industry input in skill competency development—that is, whether the skill competency lists were developed or adopted exclusively by individual course instructors or group(s) of educators, primarily by educators with industry input, with about equal educator and industry input, or primarily or exclusively by industry. Skill competency lists for at least one program were developed or adopted exclusively by educators, without industry involvement, in about one-third of all public secondary schools that offered at least one listed occupational program. About half of these schools reported a minor level of industry involvement in the development or adoption of skill competency lists for at least one listed program, fewer (34 percent) reported equal industry and educator involvement, and fewer still (6 percent) reported primary or exclusive industry involvement. Industry seemed to have a comparable level of involvement in developing or adopting skill competency lists at the postsecondary level. Almost half of less-than-4-year institutions with one or more of the listed occupational programs reported a minor level of industry input for at least one program, 36 percent involved educators and industry equally, and 8 percent used primarily or exclusively industry input.

Defining Vocational Program Completers

The FRSS survey asked secondary schools what criteria, if any, they used to determine whether a student is a "vocational program completer." The criteria listed were an end-of-program exam (not a course or graduation exam), passage of specific vocational courses, a minimum grade-point average in the program, and passage of specific academic courses other than graduation requirements. The majority of public secondary schools with listed occupational programs used some criteria to determine whether a student was a program completer in at least one of their occupational programs (89 percent) and in all of their programs (77 percent). The most commonly used vocational completer criterion was the passage of specific vocational courses; 75 percent of public secondary schools with listed occupational programs used this criterion in at least one program, while only 17 to 30 percent used each of the remaining criteria in at least one program.

Credentialing Processes

Occupational programs are sometimes linked to a credentialing process, through which students are awarded official documentation that they have completed a program and/or passed a skills test. At the secondary level, potential credentials (other than the high school diploma) are state or industry regulatory exams (resulting in registrations, licenses, or certifications) and occupational skill certificates. The FRSS survey asked whether each occupational program prepared students to earn either of these credentials. Seven percent of public secondary schools with listed occupational programs prepared students in *all* of their programs to take a state or industry regulatory exam (leading to registration, licensing, or certification), while 41 percent prepared students in at least one of their programs to do so (figure B). Thirty-one percent of public secondary schools with listed occupational programs prepared students in *all* of their programs to earn an occupational skill certificate, whereas 55 percent prepared students in at least one of their programs to do so.

The PEQIS survey asked less-than-4-year postsecondary institutions whether their occupational programs prepared students to earn various types of educational or occupational credentials. First, the survey asked about two standard academic credentials—associate's degrees and institutional certificates/diplomas. The survey also asked about regulatory credentials—state registrations, licenses, or certificates—and two types of credentials offered by industry, associations, or unions—industry/trade certificates or diplomas, and company certificates (e.g., Cisco Certified Internetwork Expert). About half of less-than-4-year postsecondary institutions that offered at least one listed occupational program offered institutional certificates/diplomas in *all* of their programs, and 87 percent offered this type of credential for at least one of their programs. Next most common were associate's degrees and state-awarded regulatory credentials (registrations, licenses, or certificates), each offered by about half of these institutions for at least one of their programs. Industry/trade certificates or diplomas were available for at least one program at about one-third of these institutions, and company certificates were offered at about one-fifth of these institutions.

Relationships Among Program Characteristics

Most program characteristics cited in the FRSS survey, such as offering skill certificates or defining vocational program completion, represent program quality-control structures. These quality-control structures are often related to each other. That is, programs that used one quality-control structure often use another as well. Looking specifically at programs that offered skill certificates, these programs were found to be more likely than those that did not offer skill certificates to use skill competency lists, to have industry input in the development or adoption of their skill competency lists, and to define program completers. In contrast, programs that identified program completers were no more likely than programs that did not identify program completers to use skill competency lists, but they were more likely to involve industry in the development or adoption of competency lists and to offer skill certificates.

Data sources: NCES Fast Response Survey System, "Survey on Vocational Programs in Secondary Schools," FRSS 72, 1999; and NCES Postsecondary Education Quick Information System (PEQIS), "Survey on Occupational Programs in Postsecondary Education Institutions," 1999.

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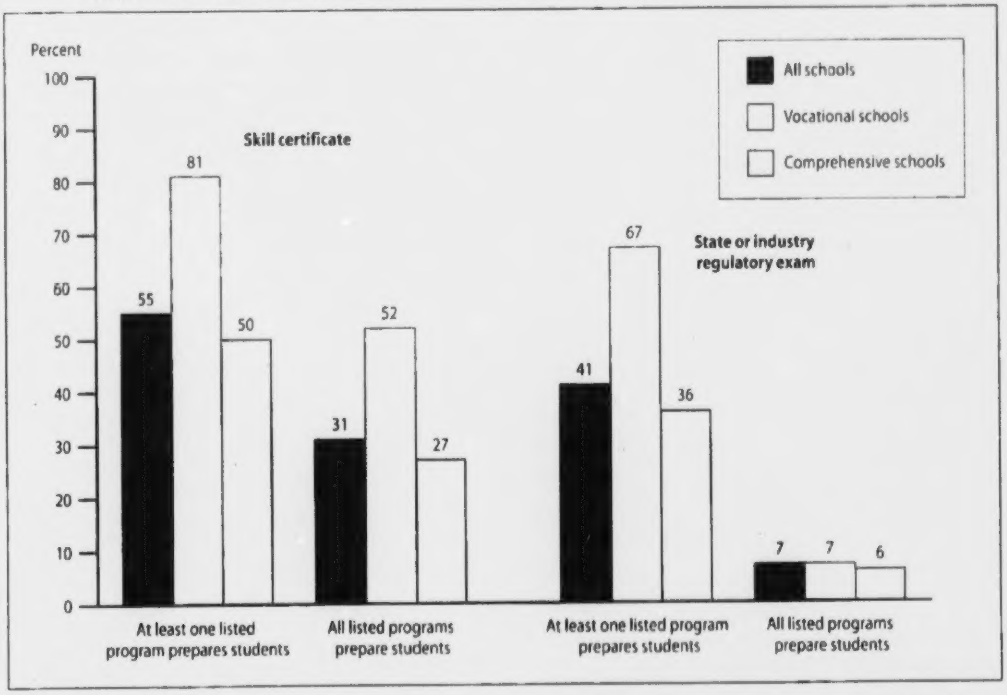
Figure B.—Percent of public secondary schools offering listed occupational programs that prepare students to earn an occupational skill certificate or to take a state or industry regulatory exam, by school type: 1999



NOTE: Data are presented for public secondary schools that offer one or more of the listed occupational programs. Estimates are based on public secondary schools with 11th and 12th grades.

SOURCE: U.S. Department of Education, National Center for Education Statistics: Fast Response Survey System, "Survey on Vocational Programs in Secondary Schools," FRSS 72, 1999; and Postsecondary Education Quick Information System (PEQIS), "Survey on Occupational Programs in Postsecondary Education Institutions," 1999. (Based on tables 10 and 11 on pp. 54 and 56 of the complete report from which this article is excerpted.)

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METHODOLOGY

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Transfer Rates

Community College Transfer Rates to 4-Year Institutions Using Alternative Definitions of Transfer

Ellen M. Bradburn and David G. Hurst

This article was originally published as the Executive Summary of the Research and Development Report of the same name. The sample survey data are from the Beginning Postsecondary Students Longitudinal Study (BPS).

Research and Development Reports are intended to

- share studies and research that are developmental in nature;
- share results of studies that are on the cutting edge of methodological developments; and
- participate in discussions of emerging issues of interest to researchers.

These reports present results or discussion that do not reach definitive conclusions at this point in time, either because the data are tentative, the methodology is new and developing, or the topic is one on which there are divergent views. Therefore, the techniques and inferences made from the data are tentative and are subject to revision.

Introduction

A large proportion of undergraduates attend community colleges (public 2-year institutions) seeking a wide range of services, from a place to experiment with postsecondary education to a structured vocational certificate or associate's degree program (Grubb 1988, 1991). Although the course offerings and degree programs of many community colleges can accommodate diverse student interests and goals, preparing students to transfer to a 4-year college remains a central characteristic of community colleges (Brint and Karabel 1989). This preparation is key to the community college's role in higher education because it affirms the community college's claim to a collegiate, academic identity and to a role in broadening access for those historically excluded from a college education. Moreover, transfer is a component of most community college students' educational aspirations (Grubb 1991, pp. 195–96).

Despite, or perhaps because of, the importance of transfer from 2- to 4-year institutions, calculating the percentage of community college students who transfer has proven to be somewhat problematic. At first glance, the transfer rate seems relatively unambiguous: it is the number of students who transfer to a 4-year college divided by the number of potential transfer students. However, the numerator and especially the denominator can both be defined in a number of different ways, each having a significant impact on the transfer estimate. The purpose of the present study is to use nationally representative community college data to examine several ways of defining the population of potential transfer students, the relationship of these definitions to student background characteristics, and the relationship of each definition to the resulting transfer rate. This report consists of three sections. The first section describes the data set used in the analysis and the measurement issues implicated in the study of transfer. The second section presents the selected indicators of the key concepts in the study and the results of the analysis. The report concludes with a discussion of the results in the context of other studies of community college students and transfer.

Data and Measurement

Although a considerable amount of research has investigated community college transfer rates, many of these analyses have used data that are either limited to a cohort of recent high school graduates, such as the National Education Longitudinal Study of 1988 (NELS:88), or are not nationally representative. This study uses the National Center for Education Statistics (NCES) 1990 Beginning Postsecondary Students Longitudinal Study (BPS:90/94), a nationally representative sample of all students who enrolled in postsecondary education for the first time between July 1, 1989, and June 30, 1990. Follow-up interviews were conducted in spring 1992 and 1994. BPS is particularly appropriate for the study of community college students because it is representative of all beginning postsecondary students, not just recent high school graduates.

The approach of this report is similar to that used in analyses of individual community colleges or districts, particularly that of Spicer and Armstrong (1996). Holding the numerator constant, variously restrictive definitions of the denominator are employed based on the different approaches to specifying the transfer population found in the literature.

This report defines *transfer* as follows: initial enrollment at a community college followed by subsequent enrollment at any 4-year institution within the 5-year study period. Potential transfer refers to being eligible for transfer or "at risk" of transfer. The broadest definition of *potential transfer* used in this analysis includes all first-time, beginning community college students, although students only taking courses for which they receive no credit are excluded from the BPS sample. The pool of potential transfer students is then restricted using eight additional definitions of the denominator. They are referred to as "increasingly restrictive" because the total proportion of the sample that is included generally decreases, although the more restrictive groups are not necessarily subsets of the less restrictive groups. These definitions were selected to approximate measures commonly used in previous research, from explicit student goals to behaviors often thought to indicate intent to transfer or commitment to postsecondary education. They are as follows:

1) Expected to complete bachelor's degree or higher;
2) Enrolled in an academic program;
3) Enrolled continuously in 1989–90;
4) Enrolled anytime in academic year 1990–91;
5) Pursuing academic major or taking courses toward a bachelor's degree or both;
6) Enrolled for 12 or more credit hours;
7) Taking courses toward a bachelor's degree in 1989–90; and
8) Pursuing academic major *and* taking courses toward a bachelor's degree.

The analysis begins with estimating the percentage of the 1989–90 cohort of beginning community college students who meet each of these definitions. The relationship of these criteria to various other student characteristics is then explored. The first issue to be examined is whether the composition of the pool of potential transfer students varies as the definitions become more restrictive. Then, consideration is given to whether different subgroups of students are more or less likely to meet each definition. Finally, a transfer rate is calculated for each definition of potential transfer students, and the relationships of these definitions to transfer are explored.

Results

Overall, 71 percent of 1989–90 beginning community college students responded that they anticipated earning a bachelor's degree or higher when asked, "What is the highest level of education you ever expect to complete?" (figure A). Also, the majority of students were enrolled in an academic program, enrolled continuously in 1989–90, and enrolled during the 1990–91 academic year. Less than half of the students met the other definitions, with 11 percent of the students both having an academic major and taking courses leading toward a bachelor's degree.

Does the composition of the group of potential transfer students change as the definitions become more restrictive?

Restricting the group of potential transfer students according to these definitions may alter the composition of the group, since these educational characteristics are themselves associated with other background variables (Berkner, Cuccaro-Alamin, and McCormick 1996). Across increasingly restrictive definitions of potential transfer, the percentage of the pool that was in the highest socioeconomic status (SES) quartile increased from 30 percent of all beginning community college students to 51 percent of beginning community college students with an academic major and taking courses leading toward a bachelor's degree. Furthermore, none of the students in this particular sample who met the most restrictive definition of potential transfer were Black, compared to 6 to 10 percent Black students in each of the other potential transfer groups.* In general, restricting the pool of potential transfer students systematically altered the composition of the group to include more traditional students (younger, dependent students who do not work full time).

What percentage of students with different characteristics meets each potential transfer definition?

In addition to examining how the composition of the population of potential transfer students changed as the

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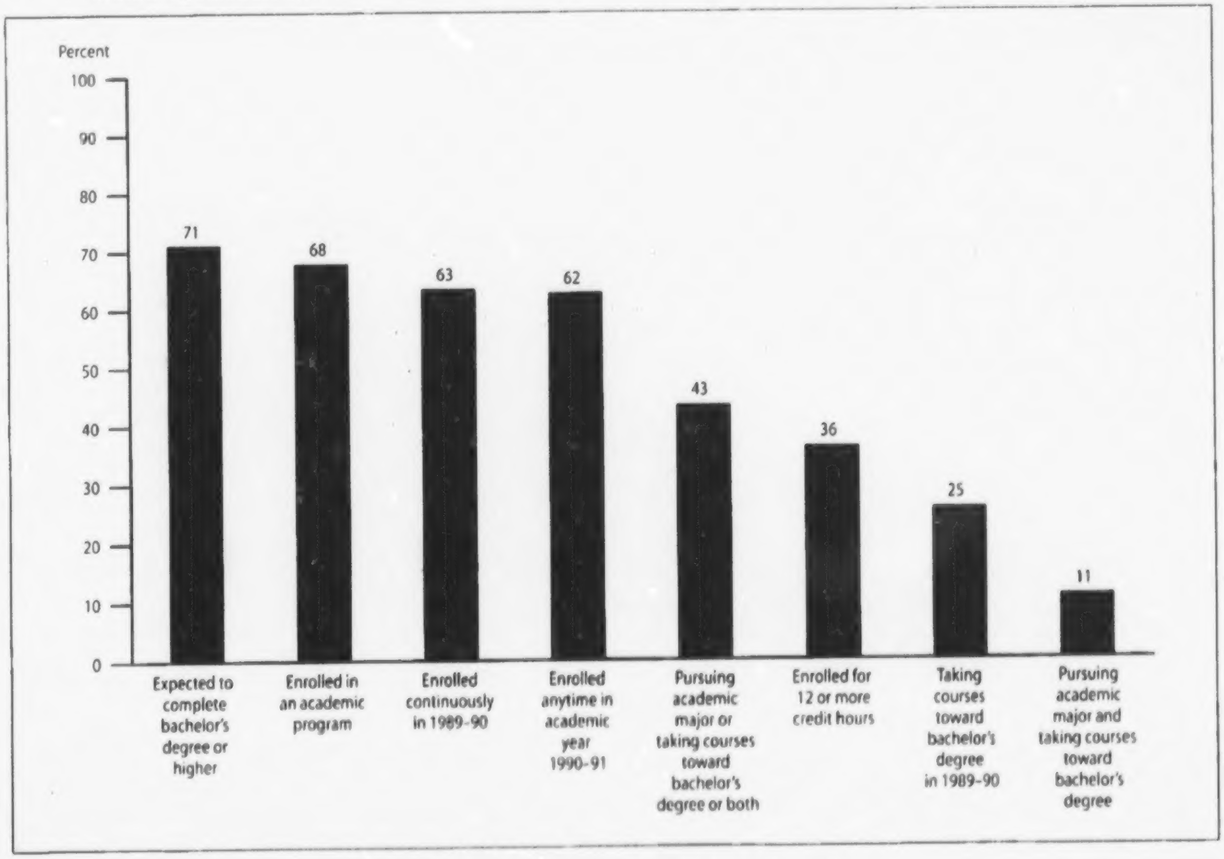
*This does not necessarily mean, however, that there are no Black students in the population of community college students who would meet this definition.

Figure A.—Among 1989–90 beginning postsecondary students enrolled at public 2-year institutions, the percentage of the initial cohort meeting each definition of potential transfer



NOTE: Unless otherwise specified, variables are as of 1989–90 (base-year interview, first term of postsecondary enrollment).

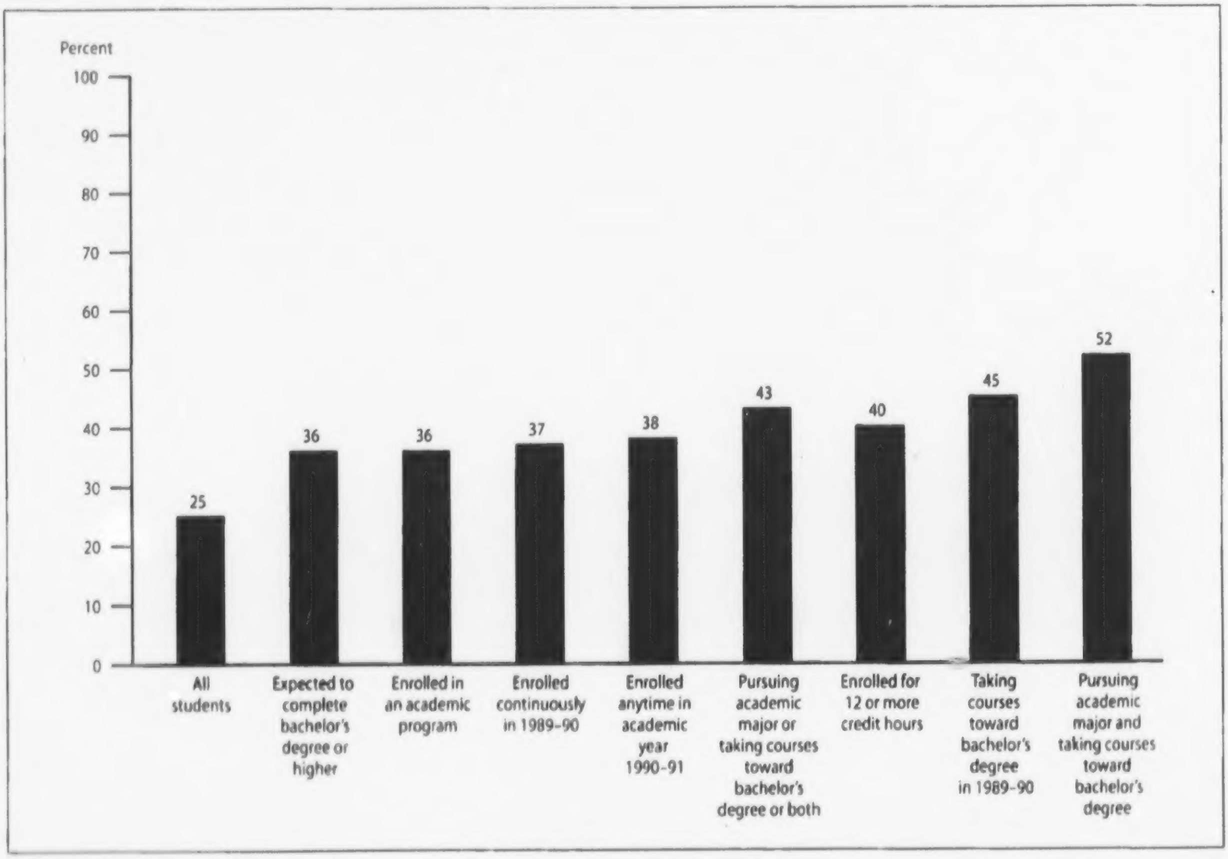
SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study (BPS:90/94), Data Analysis System.

definitions became more restrictive, the report also compares the likelihood of meeting each definition of potential transfer across various subgroups of students. For example, students 22 years or older were generally less likely than younger students to meet the various definitions of potential transfer. In general, the higher the SES, the higher the percentage of students who met the criteria for each specification. Students who reported taking at least 1 credit hour of remedial mathematics instruction during 1989–90 were generally about as likely to fit each definition as students who did not take any remedial mathematics instruction. Students who were enrolled full time were generally more likely to meet the various specifications than those who were enrolled less than full time.

Transfer rates for each definition of potential transfer

Figure B shows estimated transfer rates for all community college entrants and for the eight increasingly restrictive definitions of potential transfer arranged in order. The results show that, in general, the transfer rate increased for more restrictive definitions. The lowest rate of ever enrolling in a 4-year institution by spring 1994, 25 percent, was found for all 1989–90 beginning community college students, compared to 52 percent for students meeting the most restrictive definition (both pursuing an academic major during 1989–90 and taking courses leading toward a bachelor's degree). That is, the transfer rate for the most restrictive definition was at least *twice* the rate for all students. However, figure C demonstrates that the

Figure B.—Among 1989–90 beginning postsecondary students enrolled at public 2-year institutions, the percentage who transferred to 4-year institutions by spring 1994, for various definitions of potential transfer



NOTE: Unless otherwise specified, variables are as of 1989–90 (base-year interview, first term of postsecondary enrollment).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study (BPS:90/94), Data Analysis System.

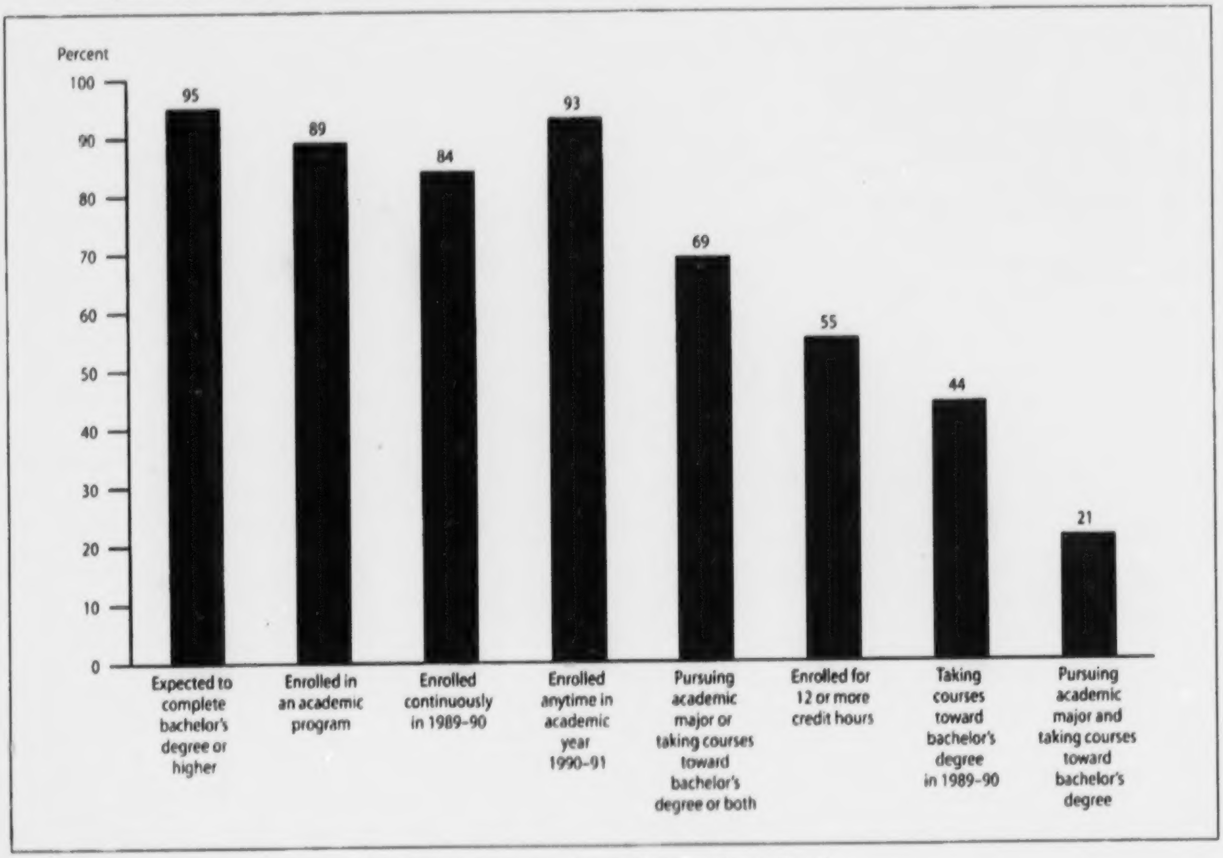
percentage of actual transfer students *meeting the criteria for inclusion in the denominator* declined significantly as the definitions of potential transfer became more restrictive. In other words, attempts to include only those students most likely to transfer actually exclude a sizable proportion of students who transfer anyway, without meeting those criteria. For example, four out of five actual transfer students did not meet the most restrictive definition considered.

Additional exploratory analyses examined the percentage of beginning community college students who ever transferred to a 4-year institution for each potential transfer definition, by selected student background characteristics. In several cases, relationships of student characteristics to transfer rates generally persisted even when the analyses were restricted to students meeting the various potential transfer definitions. For example, in general, the older the age group, the lower the percentage of students who transferred, regardless of the definition of potential transfer that was used. Also, regardless of the potential transfer definition used, higher SES was generally associated with a higher transfer rate.

Current Results in the Context of Previous Studies

The results of this study can be placed in the context of the literature about two questions: what percentage of students in community colleges have educational expectations that

Figure C.—Among 1989–90 beginning postsecondary students enrolled at public 2-year institutions who transferred to 4-year institutions by spring 1994, the percentage who met the various definitions of potential transfer



NOTE: Unless otherwise specified, variables are as of 1989–90 (base-year interview, first term of postsecondary enrollment).

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study (BPS:90/94), Data Analysis System.

include a bachelor's degree, and what is the transfer rate for community college students? This contextual information is not intended to constitute a statistical comparison across studies. In general, however, BPS estimates of the percentage of beginning community college students whose expectations included a bachelor's degree or higher, as well as the percentage of students who transferred to a 4-year institution, are higher than estimates based on other data sets. Dougherty (1987, 1992), for example, reviewed several studies and concluded that 30 to 40 percent of all community college entrants aspire to a bachelor's degree, while the present study found that 71 percent of community college students in BPS expect to complete a bachelor's degree or higher. Similarly, while the *overall* transfer rate found in this study is comparable to the average estimate of 22 percent found by the Transfer Assembly project (Cohen and Sanchez 1997), both the numerator and denominator of the Transfer Assembly project are more restrictive. Although BPS data do not facilitate use of such a restrictive definition, an approximation of it using BPS data yielded a transfer rate of 33 percent, somewhat higher than the rate resulting from the Transfer Assembly project.

However, any comparisons between the estimates presented in this report and those from other studies must be considered in light of differences in how the overall population of community college students is defined across studies. For example, BPS excluded students taking courses only for remedial or avocational purposes without receiving credit, while other estimates may include these students. As a result, the typical amount of remediation for students in BPS may underestimate, or otherwise differ from, the amount of remediation found among community college students in general—a factor that might be associated with transfer to a 4-year institution. Furthermore, this report focuses only on students enrolled in public 2-year colleges; including other less-than-4-year colleges, particularly less-than-2-year institutions, may lower the estimates. In addition, BPS data are restricted to first-time beginning postsecondary students; colleges conducting their own studies of transfer may include entering students who are not first-time beginners as defined in the BPS study. Finally, it could also be that student aspirations change appreciably from one cohort to the next and that estimates therefore could depend in part on when the survey was administered.

Conclusion

This examination of alternative ways of defining potential transfer was undertaken in part to inform research at the design stage. Which definition (or definitions) is (are) most appropriate for addressing a specific research question? The decision is not straightforward. This report illustrates the trade-off between restricting the pool of potential transfer students and excluding substantial portions of the initial cohort. For example, including only students who have an academic major and are taking courses leading toward a bachelor's degree results in a high transfer rate (52 percent), but no more than about 1 in 10 community college students meets this definition, and it excludes 4 out of 5 transfer students. Restricting the pool to the 71 percent of students who expect to earn a bachelor's degree or higher yields a transfer rate of 36 percent, but fully 95 percent of all transfers have this expectation.

Just as any statistic depends on the specific variables used to indicate the underlying concepts, the transfer rate for community college students is sensitive to the specification of potential transfer. The most complete picture is provided by using multiple indicators, but this approach is not always practical. If data collection costs or other constraints only permit one definition, one strategy is to define the group of potential transfer students broadly enough that it still reflects community college students somewhat generally, while not so broadly as to include students who never harbor plans to transfer to a 4-year college. The results of this study present several alternatives with different advantages and disadvantages.

Overall, the results provide national estimates of community college students' academic expectations and transfer activity. These estimates refine and update our understanding of students' intentions and paths to transfer. Selecting an approach to defining potential transfer is a necessary first step in any effort to analyze the impact of institution type on persistence and attainment. This report has taken a step back and analyzed the definition itself by examining several alternative approaches using a complete nationally representative sample. While the results do not demonstrate the superiority of any single definition, they sharpen one's appreciation for the consequences of measurement decisions and build a firmer foundation for future work on this population.

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Data source: The 1990 Beginning Postsecondary Students Longitudinal Study (BPS:90/94).

For technical information, see the complete report:

Bradburn, E.M., and Hurst, D.G. (2001). *Community College Transfer Rates to 4-Year Institutions Using Alternative Definitions of Transfer* (NCES 2001–197).

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To obtain the complete report (NCES 2001–197), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

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A Classification System for 2-Year Postsecondary Institutions

Ronald A. Phipps, Jessica M. Shedd, and Jamie P. Merisotis

This article was originally published as the Executive Summary of the Technical Report of the same name. The universe data are from the NCES Integrated Postsecondary Education Data System (IPEDS).

Background

A well-known classification system for higher education in the United States was developed by the Carnegie Commission on Higher Education. Originally published in 1973—and refined and updated in 1976, 1987, 1994, and 2000—the Carnegie classification system divides colleges and universities into categories based on their degree-granting activity (doctoral, master's, baccalaureate, and associate's). In addition, the Carnegie classification system identifies myriad "specialized institutions," such as theological seminaries, schools of law, teachers colleges, and medical schools.

A limitation of the Carnegie classification system is how 2-year institutions are categorized. While there are six distinct subcategories for 4-year institutions, the 2000 Carnegie classification system places the 1,669 institutions that offer associate of arts degrees or certificates and—with few exceptions—offer no baccalaureate degrees into a single grouping, Associate's Colleges (The Carnegie Foundation for the Advancement of Teaching 2000). This single grouping of institutions accounts for more institutions than Doctoral/Research Universities, Master's Colleges and Universities, and Baccalaureate Colleges combined (1,478). Furthermore, the Carnegie classification includes only accredited and degree-granting institutions, excluding over 700 of the 2,427 2-year institutions with participation agreements for Title IV student aid funds, as found in the 1997–98 "Institutional Characteristics Survey" of the Integrated Postsecondary Education Data System (IPEDS) database.

About half of all students in postsecondary education are enrolled in 2-year institutions.[1] Placing all 2-year institutions into one category, thereby masking their differences, has limited the understanding of this crucial segment of higher education. While community colleges and other 2-year institutions often share a commitment to open access, comprehensiveness, and/or responsiveness to local needs, these unique American inventions are in fact a disparate group of institutions. The purpose of this report is to describe a classification system for 2-year institutions that can contribute to research and provide a framework for policy discussions.

Methodology

This study used the IPEDS database. The universe of institutions consists of 2,068 Title IV participating 2-year postsecondary institutions that met the data criteria for this study.[2] K-means cluster analysis—in combination with various other procedures—was the primary method used to classify these institutions.

Cluster analysis is a multivariate statistical procedure that attempts to mathematically form "clusters," or groups of relatively homogenous entities, based on measures of similarity with respect to specific variables, while maximizing the differences between groups. A focus group of experts in the field—researchers, association leaders, and policy analysts—along with preliminary data analysis, determined which variables were both policy relevant and appropriate to be included in the cluster analysis procedure. The results of the cluster analysis, in conjunction with subsequent analyses, revealed which variables created the most distinguishable categories of institutions.

The Classification System

The universe of institutions was first separated into three sectors by institutional control—public, private not-for-profit, and private for-profit. Further analyses were conducted within each sector, resulting in the seven-category classification system described below (figure A).

Public institutions

Size of institutional enrollment is the most distinguishing characteristic of public 2-year institutions. Below is a brief description of the three categories within this sector:

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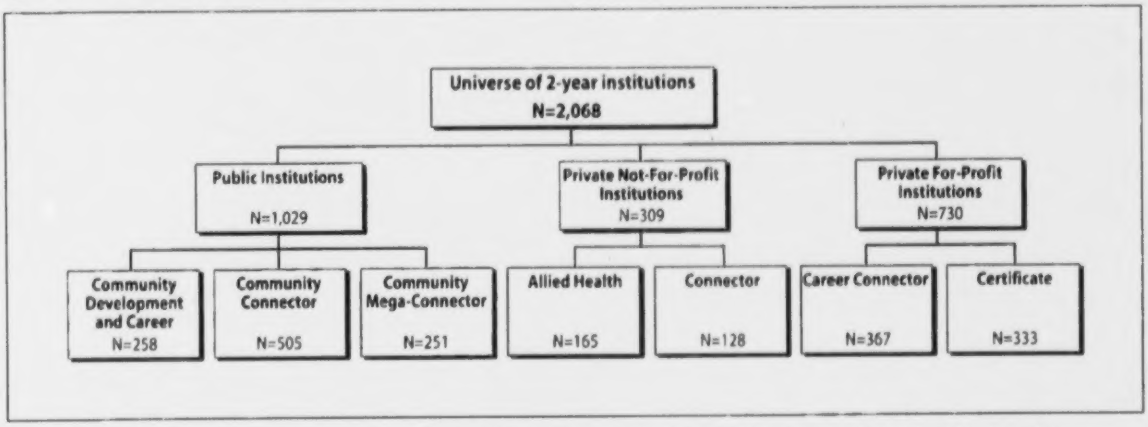
[1] This enrollment information is based on the NCES 1995–96 National Postsecondary Student Aid Study (NPSAS:96), Data Analysis System.

[2] About 350 institutions were not included in this study because of inconsistencies in their data reporting in the different IPEDS surveys.

Figure A.—Classification system of 2-year institutions



NOTE: The sum of the number of institutions in each category does not add to the total number of institutions due to missing data in the variables chosen for categorization. In the universe of 2,068 institutions analyzed in this report, 61 institutions could not be placed in a final category: 15 public 2-year institutions, 16 private not-for-profit institutions, and 30 private for-profit institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 1997 Full Collection Year.

Community Development and Career Institutions are institutions with an unduplicated headcount of less than 2,000 students. These institutions tend to confer awards and degrees primarily in job and career skills development, and to focus on overall workforce development for the communities they serve.

Community Connector Institutions are institutions with an unduplicated headcount of 2,000 to 9,999 students. These institutions tend to confer awards and degrees that target job and career skills development, and to offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.

Community Mega-Connector Institutions are institutions with an unduplicated headcount of at least 10,000 students. These institutions tend to be in urban locations, to confer awards and degrees that target job and career skills development, and to offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.

Private not-for-profit institutions

The percentage of total awards granted that are in allied health programs is the distinguishing characteristic of private not-for-profit 2-year institutions. Two categories were created within this sector:

Allied Health Institutions are institutions that grant 100 percent of their awards in allied health programs. These institutions tend to be small in enrollment and to have an exclusive focus on allied health training.

Connector Institutions are institutions that grant less than 100 percent of their awards in allied health programs. These institutions tend to confer awards and degrees that target job and career skills development, and to offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.

Private for-profit institutions

A distinguishing characteristic of private for-profit 2-year institutions is the percentage of total awards granted that are certificates. Below is a description of the two categories within this sector:

Career Connector Institutions are institutions that grant less than 100 percent of their awards as certificates. They are degree-granting institutions—although many also offer certificates—that target job and career skills development. Many of these institutions offer academic programs with some component of general education that can facilitate transfer to 4-year institutions.

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Certificate Institutions are institutions that grant 100 percent of their awards as certificates. These institutions provide specialized training, usually in a single job category or area.

Reference

The Carnegie Foundation for the Advancement of Teaching. (2000). *The Carnegie Classification of Institutions of Higher Education.* Available: *http://www.carnegiefoundation.org/Classification/CIHE2000/Tables.htm*

Data source: The NCES 1997–98 Integrated Postsecondary Education Data System (IPEDS).

For technical information, see the complete report:

Phipps, R.A., Shedd, J.M., and Merisotis, J.P. (2001). *A Classification System for 2-Year Postsecondary Institutions* (NCES 2001–167).

Author affiliations: R.A. Phipps, J.M. Shedd, and J.P. Merisotis, The Institute for Higher Education Policy.

For questions about content, contact Aurora D'Amico (*aurora.d'amico@ed.gov*).

To obtain the complete report (NCES 2001–167), call the toll-free ED Pubs number (877–433–7827), visit the NCES Web Site (*http://nces.ed.gov*), or contact GPO (202–512–1800).

OTHER PUBLICATIONS AND FUNDING OPPORTUNITIES

OTHER PUBLICATIONS

Programs and Plans of the National Center for Education Statistics: 2001
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The Nation's Report Card: Mathematics Highlights 2000
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Other Publications

Programs and Plans of the National Center for Education Statistics: 2001

Celestine Davis (editor)

This publication summarizes current NCES statistical programs, including major publications and plans for future work. It includes descriptions, timelines, and plans for all NCES data collections, such as the Common Core of Data, Integrated Postsecondary Education Data System, National Assessment of Educational Progress, Early Childhood Longitudinal Study, Third International Mathematics and Science Study–Repeat, and National Postsecondary Student Aid Study. Also described in this publication are NCES centerwide programs and services, such as statistical standards, training, technology, and customer service.

Editor affiliation: C. Davis, NCES.

For questions about content, contact Celestine Davis (*celestine.davis@ed.gov*).

To obtain this publication (NCES 2001-038), call the toll-free ED Pubs number (877-433-7827) or visit the NCES Web Site (*http://nces.ed.gov*).

The Nation's Report Card: Mathematics Highlights 2000

Shari L. Santapau

The National Assessment of Educational Progress (NAEP), known as "The Nation's Report Card," is authorized by Congress, administered by NCES, and overseen by the National Assessment Governing Board (NAGB). For over 30 years, NAEP has been the only ongoing national indicator of what American students know and can do in major academic subjects. In 2000, NAEP administered a mathematics assessment to a national sample representative of all students at grades 4, 8, and 12. In addition, state-level results were collected at grades 4 and 8. The findings from the NAEP 2000 Mathematics Assessment provide a picture of U.S. students' mathematics knowledge, skills, and achievement.

This 16-page publication uses a full-color tabloid format to present highlights from the 2000 mathematics assessment. It describes the assessment content, presents major findings, and provides information about practices at home and in school that are related to mathematics achievement. Results in 2000 are compared to results in 1990, 1992, and 1996. The publication also includes sample test questions and examples of student responses.

Author affiliation: S.L. Santapau, Educational Testing Service.

For questions about content, contact Arnold Goldstein (*arnold.goldstein@ed.gov*).

To obtain this publication (NCES 2001–518), call the toll-free ED Pubs number (877–433–7827) or visit the NCES Web Site (*http://nces.ed.gov*).

The Nation's Report Card: State Mathematics 2000 Reports

Charlotte Solomon, Laura Jerry, and Anthony Lutkus

National Assessment of Educational Progress (NAEP) assessments are administered at both the state and national levels. The NAEP 2000 Mathematics Assessment collected state-level results for fourth- and eighth-graders who attended public schools in states and other jurisdictions that volunteered to participate. NAEP has collected state-level mathematics results since 1992 at grade 4 and since 1990 at grade 8.

This series of reports provides each participating jurisdiction with an overview of its results from the 2000 mathematics assessment as well as previous assessments. Each jurisdiction receives its own customized report, which presents results for public school students in that jurisdiction, along with national and regional results for comparison. Each report also presents a second set of results that includes the performance of special-needs students who were permitted accommodations in the test administration. In addition, the report includes information about the assessment content, the sample of students assessed, and the way results are reported.

Author affiliations: C. Solomon, L. Jerry, and A. Lutkus, Educational Testing Service.

For questions about content, contact Arnold Goldstein (*arnold.goldstein@ed.gov*).

To obtain a state report (NCES 2001–519), visit the NCES Web Site (*http://nces.ed.gov*).

Funding Opportunities

The AERA Grants Program

Jointly funded by the National Science Foundation (NSF), NCES, and the Office of Educational Research and Improvement (OERI), this training and research program is administered by the American Educational Research Association (AERA). The program has four major elements: a research grants program, a dissertation grants program, a fellows program, and a training institute. The program is intended to enhance the capability of the U.S. research community to use large-scale data sets, specifically those of the NSF and NCES, to conduct studies that are relevant to educational policy and practice, and to strengthen communications between the educational research community and government staff.

Applications for this program may be submitted at any time. The application review board meets three times per year. The following are examples of grants recently awarded under the program:

Research Grants

- Mark Beasley, St. John's University—Effects of Educational Opportunity on the Intraschool Distribution of Eighth-Grade Mathematics Achievement in the U.S. and Korea: Multilevel Analyses of TIMSS
- Douglas Downey, Ohio State University—When the Time Is Right: Delayed Entry to Kindergarten and Its Consequences for Stratification
- Ithel Jones, Florida State University—Social and Academic Effects of Varying Types of Preschool Experiences
- Lois Joy, Smith College—Gender Differences in the Transition From College to Work: Salaries, Occupations, and Job Changes in the Skilled Job Market

- Seongeun Kim, University of California, Los Angeles—Prevention of School Violence and Crime: Investigation of Cross-Level Interaction Effects of Risk and Protective Factors on Adolescent Violence and Crime Using Multilevel Longitudinal Methods
- John Warren, University of Washington—Trends in the Selectivity and Consequences of Adolescent Employment, 1966–1997

Dissertation Grants

- Percy Abram, Stanford University—Does Language Matter? The Effects of Language on the Development of Social Capital Among Latino Students
- Nora Gordon, Harvard University—Tracking Title I: From Revenues to Inputs to Outcomes
- Jenifer Hamil-Luker, University of North Carolina, Chapel Hill—Differential Participation in and Returns to Education Over the Life Course
- Amy Lutz, SUNY-Albany—Bilingualism in the USA: Language Outcomes and Consequences for Hispanic Youth
- David Most, University of California, Los Angeles—Funding and Finishing the Ph.D.: The Role of Various Patterns of Graduate Support Mechanisms
- Gregory Palardy, University of California, Santa Barbara—An Improved Model for the Equitable Evaluation of School Effectiveness: An Application of Multilevel Latent Variable Growth Modeling

For more information, contact Edith McArthur *(edith.mcarthur@ed.gov)* or visit the AERA Grants Program Web Site *(http://www.aera.net/grantsprogram)*.

The NAEP Secondary Analysis Grant Program

The NAEP Secondary Analysis Grant Program was developed to encourage education researchers to conduct secondary analysis studies using data from the National Assessment of Educational Progress (NAEP) and the NAEP High School Transcript Studies. This program is open to all public or private organizations and consortia of organizations. The program is typically announced annually, in the late fall, in the *Federal Register*. Grants awarded under this program run from 12 to 18 months and awards range from $15,000 to $100,000. The following grants were awarded for fiscal year 2001:

- David Grissmer, Rand Corporation—Analyzing State NAEP Data to Address Educational Policy Issues in K–12 Education
- Lawrence Rudner, LMP Associates, Inc.—Scoring Content Essays Using Bayesian Networks
- Robert Lissitz, University of Maryland—Science Achievement in Social Contexts: An Alternative Method for Analysis of Data From NAEP
- Richard Niemi, University of Rochester—Components of Knowledge in the NAEP 1998 Civics Main and Trend Assessments
- Daniel Sherman, American Institutes for Research—Application of Small Area Estimation Methods to NAEP
- Claudia Gentile, Educational Testing Service—Evaluating the "Creative" in Creative Writing
- Matthew Schultz, ACT, Inc.—Describing Achievement Levels With Multiple Domain Scores

For more information, contact Alex Sedlacek *(alex.sedlacek@ed.gov)*.

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